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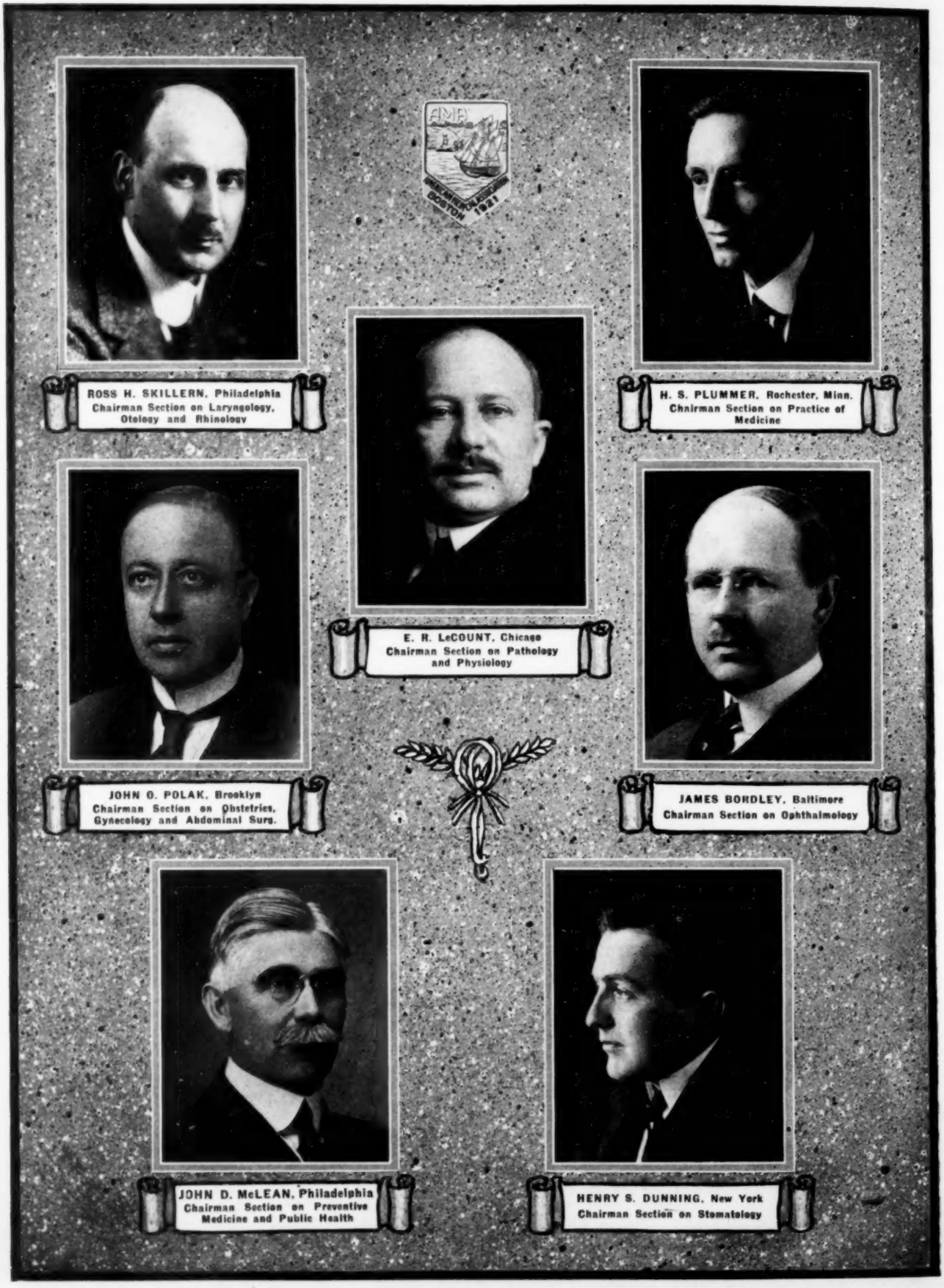
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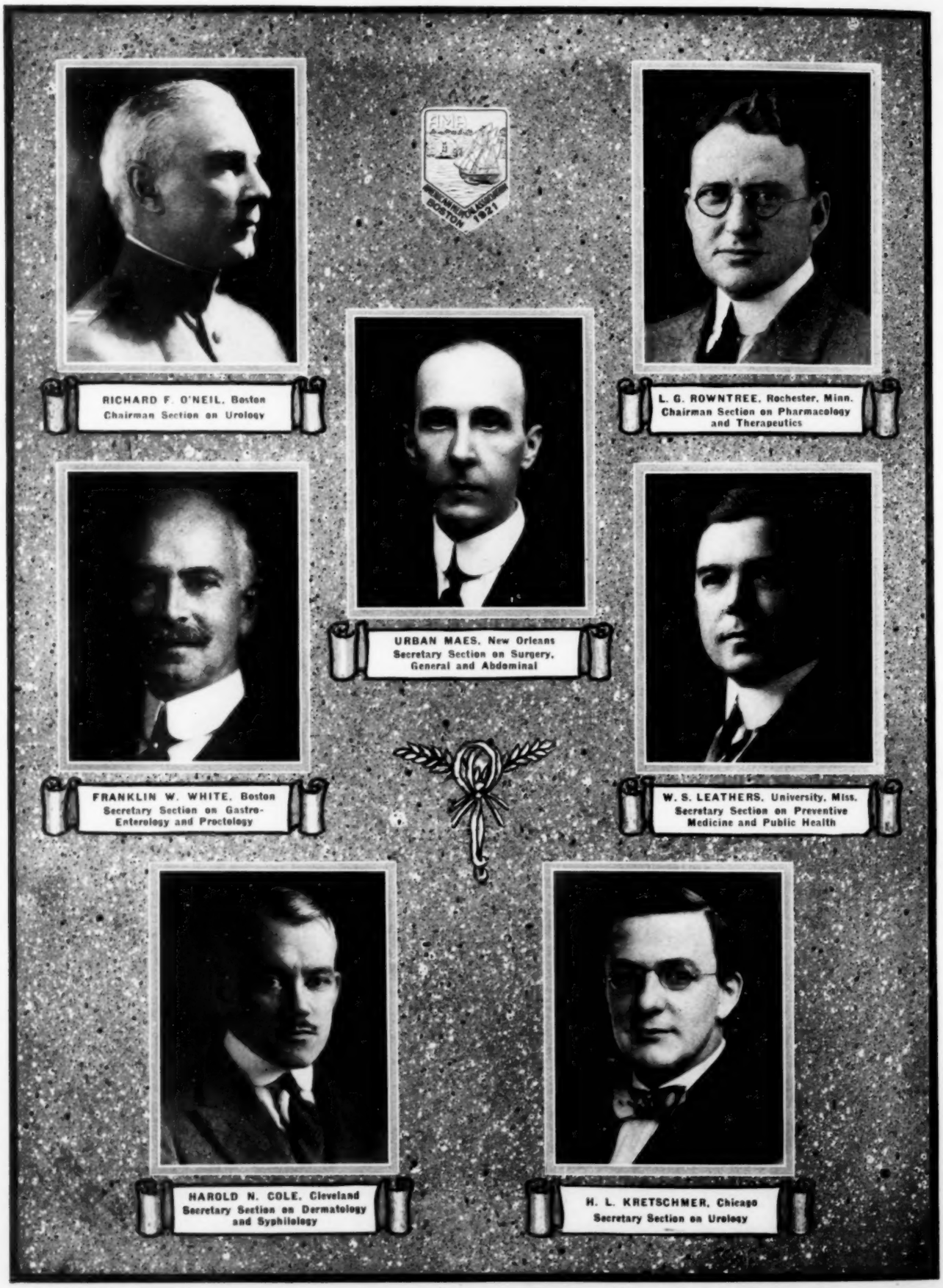
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MYOCARDIAL NECROSIS IN HYPERTHYROIDISM *

ERNEST W. GOODPASTURE, M.D.

BOSTON

There are probably no cases of exophthalmic goiter in which cardiac symptoms are continually completely wanting. This statement, made recently by Albert Kocher,[1] would no doubt be endorsed by most physicians who have studied especially the condition of hyperthyroidism. The cardiac symptoms naturally vary greatly in degree of severity. There may be only a slight tachycardia, though not infrequently the disturbance of function becomes progressively worse until the patient is permanently incapacitated by myocardial exhaustion and may die suddenly from heart failure.

The nature of the abnormalities of cardiac function in hyperthyroidism is not thoroughly understood, though it is generally believed that they result from the action of secretion products of the diseased thyroid gland acting on the myocardium directly or through its nervous control. In reviewing the descriptions of the heart in various studies of the pathology of exophthalmic goiter, one gets the impression that too often the pathologist has been satisfied with a record of gross appearances, noting dilatation of the right chambers, moderate hypertrophy of the left ventricle and slight fatty change, followed by an inadequate microscopic description or none at all. Considering the importance of the cardiac symptoms and the extent of clinical investigation of them, histologic studies of the heart in this disease are remarkably few and are constituted of brief observations in a very limited number of cases. Thus, Simmonds,[2] in a study of lesions in eight necropsies, cursorily dismisses the cardiac changes with the statement that with the exception of a tolerably constant dilatation of the right and moderate hypertrophy of the left ventricle, he found at most only a slight fatty change of muscle fibers, and this in very limited extent. Fahr [3] is of the opinion that histologic changes in the myocardium have not been searched for any too zealously because of the prevailing view that the cardiac disorders are due to action of a toxic substance first of all on nerves of the heart. At any rate, until the observations of Fahr, only fatty degeneration of the cardiac muscle had been described, and he contributed a study of five cases showing evidences for the first time of actual destructive lesions of the myocardium. The first two were girls, aged 21 years, who died of "heart failure" following partial strumectomy. Histologically, an interstitial myocarditis was found consisting of an accumulation of round cells between the muscle fibers and, in the neighborhood of small vessels, also degenerative changes (type not specified), fragmentation and destruction of muscular fibers. In two others, women, one aged 43, the other, 53, only small interstitial round-cell infiltrations were found, and in a fifth, a man, aged 48, who died of an intercurrent paratyphoid infection, there were, in addition to small interstitial infiltrations, fatty degeneration and focal hyaline necrosis.

Recently I have studied anatomically the hearts from two cases of hyperthyroidism, in both of which auricular fibrillation had been present some time before death. In each instance the cause of death was evidently myocardial exhaustion. In these hearts there was found acute necrosis of the myocardium, in one so extensive as to involve a large part of the left ventricular muscle.

Acute necrosis of the myocardium is a very severe lesion, and the type present in these hearts is not frequently found, especially in adults. For convenience of description, three types of myocardial necrosis may be mentioned: (1) infarction of the myocardium due to occlusion of a terminal artery, (2) infectious myocarditis, in which foci of necrosis are associated with the presence of the infecting micro-organism, and (3) toxic myocarditis, a focal or diffuse death of muscle cells in the absence of occluding vascular lesions and local infection. The last type is rare in adults, and in children in whom it occurs somewhat more commonly it is found only in association with extreme intoxication, usually by diphtheria or scarlet fever. It is to this type that the lesions of the heart in the two cases of hyperthyroidism belong. Its presence is indicative of an extreme intoxication, and yet there was no evidence in either of an infection of sufficient virulence to be alone responsible for the necrosis. It is equally difficult to conceive of so acute and uniform a lesion being the outcome of a slowly progressive degeneration of the myocardium resulting from the action of secretion products of a diseased thyroid gland. It seems more reasonable to suppose that these hearts, overstimulated by disease of the thyroid and laboring in a condition bordering on exhaustion, were in a state of greater susceptibility to injury by toxic substances such as may have resulted from a relatively mild terminal infection, which under ordinary circumstances would not have materially injured the myocardium.

One of these cases was an example of exophthalmic goiter; the other belonged to that rather indefinite group

* From the Department of Pathology, Medical School of Harvard University, and Peter Bent Brigham Hospital.

1. Kocher, Albert, in Kraus and Brugsch: Spezielle Pathologie und Therapie **1**: 751, 1919.
2. Simmonds, M.: Deutsch. med. Wchnschr. **47**: 2164, 1911.
3. Fahr, T.: Centralblatt f. allg. Path. u. path. Anat. **27**, No. 1, 1916.

of hyperthyroidism in which cardiac symptoms are likely to be most distressing, and not infrequently terminating in sudden death from circulatory failure.

The clinical histories of these two cases, which were studied at the Peter Bent Brigham Hospital, are of such interest that, with the permission of Professor Christian, I have abstracted them rather fully.

REPORT OF CASES

CASE 1.—*History.*—A white man, aged 45, was admitted the second time, Nov. 24, 1919. The diagnosis was: chronic myocarditis, auricular fibrillation; hyperthyroidism; syphilis; aortitis; chronic prostatitis.

Summary of Previous Admission.—The patient was admitted first, Sept. 30, 1919, and stayed until October 1, when he insisted on going home, even though strongly urged to remain in the hospital. His complaint on entering the surgical service was hyperthyroidism, but he was transferred to the medical service because of a cardiac decompensation. He remained only three days. He was given digitalis and advised to return to the hospital at the earliest possible time. The past history included typhoid fever, and a chancre at the age of 21. The present illness had a duration of fifteen years, with repeated periods of great nervousness, exophthalmos and loss of weight, with a feeling of weakness. He was treated in various hospitals, with remissions during which he could work. Physical examination revealed an enlarged thyroid gland and marked exophthalmos, accompanied by an enlarged and irregular heart with a systolic murmur.

Present Illness.—Since leaving the hospital, Oct. 1, 1919, the patient had remained in bed at home, except on Monday and Tuesday of each week, at which time he would go down to his office. His hyperthyroidism had not troubled him since he left, but his dyspnea and general weakness had increased in severity, particularly during the last two weeks. At present he could walk only about one-half block or so before he was compelled to stop to "catch his breath." For the last three or four weeks the patient had had a bad cough, which had been producing considerable quantities of frothy white phlegm, often containing small amounts of blood. These coughing spells had increased in severity so that each night he had spells of about an hour's duration in which he coughed and vomited. During the last week or two he had had spells of coughing and vomiting for an hour or so in a milder form during the day. He had spat up no blood during these spells until two days before. About one month before, his ankles and lower legs began to swell more, and had been edematous since then. His abdomen during the last two weeks had increased in size enough to compel an alteration in his clothing. He had taken no medicine since his supply of digitalis gave out six weeks before.

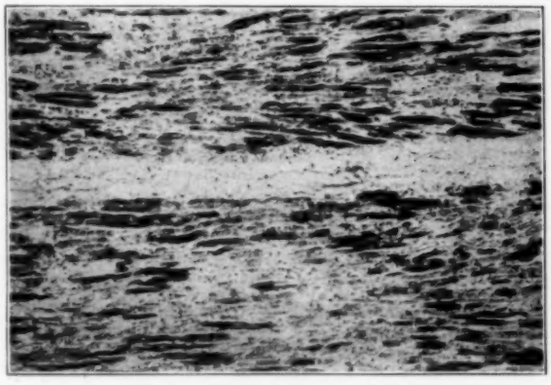

Fig. 1 (Case 1).—Low power view of left ventricular myocardium, showing diffuse necrosis and edema.

Physical Examination.—The patient was emaciated though well developed, mentally clear, and had a slightly nervous attitude. The hair was scant, gray and fine. The face was not remarkable except for protruding eyeballs. The skin was slightly jaundiced, but had no eruptions or pigmentation. The pupils were unequal, the left being the larger, and were irregular, reacting to both light and distance. There were no abnormalities of the sclerae, no photophobia, lacrimation, diplopia or nystagmus. Von Graefe's sign was absent. There was considerable exophthalmos, which was about equal on the two sides. The conjunctivae were normal. There was no gross disturbance of vision and no lid-lag. Glasses were not worn. A watch was heard at 30 cm. on both sides. The normal voice was heard without difficulty. There were no stigmas or tophi. The breath was offensive. There were no ulcerations or pigmentation in the mouth. The lips were of normal color. The teeth were in poor condition, many being missing and carious. There was some pyorrhea. There was no bleeding or lead line of the gums. The tongue was not coated; it protruded in the median line with only slight tremor. There were no mucous patches. The tonsils were small, cryptic and ragged, with slight exudate. The pharynx was slightly inflamed; there was some catarrh. The reflexes were present. There was enlargement of the thyroid on each side of the median line. There was visible pulsation, palpable thrill and an audible systolic bruit. There was no stiffness of the neck or tracheal tug. The thorax was symmetrical. Respirations were 32 per minute. Expansion was equal on both sides. There were no abnormal pulsations. Heart examination revealed diffuse apex impulse located in the fifth intercostal space. The right border of dulness measured 5 cm. from the midsternal line. The left border of dulness was 14 cm. from the middle of the sternum. There was a soft systolic murmur heard best at the apex, but easily heard all over the precordia. It was transmitted to the left axilla and up into the neck. The force of the heart beat was uneven, and its action was very irregular. The radial pulses were equal and absolutely irregular. There was marked pulse deficiency. The pulse rate was 140 per minute. The vessel walls were not hardened. The blood pressure was: systolic, 135; diastolic, 70. Excursion of the lungs was equal. Tactile fremitus was normal; also the voice sounds. A few coarse râles were heard in the bases of both lungs in the back, where there was also slight dulness to percussion. The abdomen was symmetrical; there was no spasm or tenderness. Shifting dulness was present, and also a questionable fluid wave. There were no herniae. Reflexes were normal. A firm, hard edge to the liver was palpable near the epigastrium, 3 cm. below the costal margin. It was slightly tender. The penis was edematous. The scrotum was filled with fluid. Neither the penis nor the testicles were tender. A few palpable lymph nodes were felt in the submaxillary triangle. None were felt in the axillary, epithrochlear or inguinal regions There was only slight tremor of the hands. The reflexes were slightly exaggerated, and all were present. The knee jerks were exaggerated. There was edema of both ankles and lower legs. The patient had worn elastic bandages for fifteen years on the legs to prevent much swelling.

Summary.—A married man, aged 45, a salesman, formerly a hotel manager, was sent in with the complaint of dyspnea, weakness, and swelling of the abdomen and legs. He left the hospital, October 1, after being urged emphatically to remain longer because he seemed to be just on the edge of decompensation. He left, however, and had conducted his business two days a week in his office for the last seven weeks and had remained in bed the rest of the time except for a short time of sitting at the dinner table each evening and going back and forth to the toilet. He had gradually developed marked dyspnea, swelling of the lower limbs and ankles, ascites, and edema in the penis and scrotum. During the last two weeks he had failed rapidly, and his decompensation had become more marked. Physical examination revealed an enlarged thyroid gland, exophthalmos, unequal pupils, and an enlarged and absolutely irregular heart, with a soft systolic murmur heard all over the precordia.

The diagnosis was: auricular fibrillation, chronic myocarditis, with decompensation, hyperthyroidism, syphilis.

Clinical Course.—November 26, there was marked exophthalmos. There was a loud bruit and thrill over the thyroid, particularly the left lobe. The heart measured 14 cm. to the left, and 5 cm. to the right. The sounds were of poor quality and absolutely irregular. There was edema of the bases of the lungs, and fluid in the abdomen. There was more or

less general anasarca. The diagnosis was: exophthalmic goiter, chronic myocarditis, auricular fibrillation.

November 29, it was recorded that on admission, the patient was given 1.6 gm. of digitalis in one dose. There was a wide pulse deficiency. The digitalis caused this to disappear. The pulse had fallen to about 100. This dose was given on the 24th. On the 27th he was started on 0.1 gm. of digitalis three times a day, which had continued to cause only a very slight separation of the pulse rate and rate of the heart beat; but the general tendency of the two rates was downward. The patient so far had had a very satisfactory diuresis.

December 7, it was stated that since the last note patient's pulse had continued to drop from 100, till for the last three days it had averaged about 70. For the last two days there had been no pulse deficiency whatever. Accompanying this drop in the pulse rate there had been a wonderful diuresis. The patient's weight had dropped from 67 kg. on admission to 54.2 kg. on this day. He was now able to lie nearly flat in bed. Dyspnea had almost completely disappeared. His improvement had been remarkable. The phenolsulphonephthalein test on the 26th was 40 per cent. The clinical pathologic condition was otherwise negative except for a moderate secondary anemia.

December 9, the patient was improving rapidly. The pulse was now slow. There was auricular fibrillation, with great cardiac hypertrophy and a loud systolic murmur at the apex.

December 13, it was noted that during the last week the pulse had not risen above 80, and there had been little or no pulse deficiency. The patient's weight had remained about the same. At the present time he had little or no edema.

December 19, the blood pressure was: systolic, 106; diastolic, 65. The patient had been doing very well. The pulse had been about 80, and the temperature had been normal. He still had a slight pulse deficiency. He was gaining in weight.

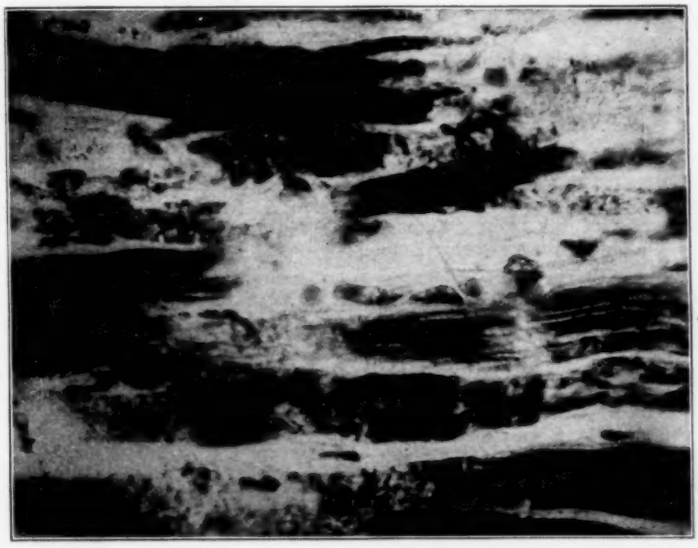

Fig. 2 (Case 1).—High power view of specimen shown in Figure 1.

December 23, the apex impulse was seen in the fourth space 15 cm. to the left. The left border of dulness by percussion made 12.5 cm. in the fifth space. The action was absolutely irregular. There was a blowing systolic murmur at the apex, and a harsh systolic murmur at the base. There was no murmur in diastole and no pulse deficit. There was still a moderate exophthalmos. The veins of the chest were prominent.

December 26, percussion dulness in the second interspace was 5 cm. to the right, and 3.5 cm. to the left. In the third interspace it was 5 cm. to the right, and 3 cm. to the left. The right border of dulness was 4 cm. from the midline, and the left border was 14 cm. There was a systolic murmur over the precordium. The action was absolutely irregular. A roentgenogram of the chest revealed apparent diffuse dilatation of the aorta and enlarged heart. In the opinion of the surgical examiner, thyroidectomy was out of the question, the cardiac condition being well established, not to speak of the aortic dilatation. He stated that if the patient desired he would offer vessel (pole) ligation, but certainly not urge it.

January 10, the heart action was absolutely irregular, with a rate of 80. There was no pulse deficit. There were signs of moderate left hydrothorax. In the last week the patient's temperature had been slightly elevated, going up a little above 100. The pulse began to come up around 90. January 7, he was started on 0.1 gm. of digitalis twice a day. January 9, he was found to have a moderate amount of fluid in the left chest. January 10, he was tapped, and about a liter of fluid removed. He had a slight amount in the right chest, but it was hardly sufficient to withdraw. He showed a slight amount of edema when up for a short time each day in a chair. He showed very little improvement from day to day, and apparently was making very little progress.

January 14, the patient had been in the hospital fifty-one days. January 11, his left chest was tapped, and 1,200 c.c. of blood tinged fluid was removed with considerable coughing. This subsided, and in about twenty-four hours he was much better. Three days later the patient asked the nurse for a glass of water, and while this was being obtained for him, he became very cyanotic, and his respirations ceased. The heart continued to beat for some minutes afterward, and the muscles about his chest and arms showed fibrillary twitchings.

The metabolism averaged + 21 from normal.

The blood, November 24, was: hemoglobin, 60 per cent. (T.); red blood cells, 3,200,000; white blood cells, 5,050; smear: polymorphonuclears, 63 per cent.; lymphocytes, 20 per cent.; large mononuclears, 12 per cent.; eosinophils, 5 per cent.; no nucleated or stippled reds; some anisocytosis and poikilocytosis; color good; platelets normal. December 3, white blood cells, 3,900. December 12, white blood cells, 4,800. December 22, hemoglobin, 100 per cent. (S.); red blood cells, 3,396,000. January 2, white blood cells, 4,800. January 8, white blood cells, 5,000.

Necropsy.—Seven hours after death there was considerable exophthalmos, and the thyroid gland was enlarged. The peritoneal cavity contained 700 c.c. of blood-stained fluid. The left pleural cavity contained 1,500 c.c., and the right pleural cavity, 100 c.c. of similar fluid. The right lung was large and boggy, the left lung contracted and atelectatic. The heart was dilated, extending 7 cm. to the right and 10 cm. to the left of the midline. The enlargement was due mainly to dilatation of the right side. There was moderate dilatation and hypertrophy also of the left ventricle. The ascending aorta was dilated, its wall measuring 8 cm. in width after being opened, and moderate arteriosclerosis was present. The myocardium on section was grayish brown, flabby, and showed a few light streaks. The mediastinum contained in the situation of the thymus a mass 6 cm. long by 2.5 cm. wide, which extended down, partially covering the pericardium. On section it was composed of firm, fatty tissue in which were embedded several irregularly spherical, discrete, purplish masses, resembling swollen lymph nodes, but containing considerable blood. These did not have the appearance of thymic tissue in gross. The gastro-intestinal tract showed marked hyperplasia of lymphoid tissue of the gastric mucosa which, in consequence, was very nodular. The spleen weighed 275 gm. and showed passive congestion with hyperplasia of the lymphoid follicles. The pancreas showed fatty infiltration and fibrosis. The liver was small, weighed 1,000 gm., and was diffusely but not coarsely nodular. On section it showed definite cirrhosis. The kidneys were congested. The thyroid was enlarged, vascular and soft. Its cut surface presented a smooth, pinkish, rather gelatinous appearance. The testicles were flabby.

Microscopic examination revealed atelectasis and chronic passive congestion of the lungs. There was no evidence of acute infection. The heart showed marked edema and a very diffuse acute necrosis of the myocardium of the left ventricular wall (to be described more in detail later). There were

lymphoid hyperplasia of the stomach, intestine and spleen; progressive atrophic cirrhosis of the liver with numerous vacuolated nuclei of the liver cells suggesting intranuclear glycogen; edema and congestion of the kidneys; atrophy and aspermatogenesis of the testicles, though interstitial cells were present in about normal numbers and contained an abundance of yellow pigment. The aorta showed arteriosclerosis but no evidence of syphilis. The thyroid was very hyperplastic. No colloid was present. The acini were lined by cuboidal or columnar epithelium, a great deal of which was desquamated, the cells showing much breaking up of cellular cytoplasm. Foci of lymphocytes were present here and there, as well as occasional large acidophilic epithelial cells.

The tissue from the thymic region showed the arrangement of lymph glands with active central lymphoid follicles and dilated spaces about the periphery, which contained numbers of large free cells with round or oval vesicular nuclei and abundant cytoplasm. Some of these cells were phagocytic and resembled endothelial cells; others had a pinkish, finely granular cytoplasm. Large mononuclear eosinophilic cells were frequently seen. Red blood cells were numerous within the spaces. No Hassall's corpuscles were present. These nodules of cells are considered to be altered thymic tissue.

This case presented many characteristic evidences of hyperthyroidism of the exophthalmic goiter type, with myocardial insufficiency the most prominent and important manifestation. Unfortunately, only the left ventricular myocardium was studied microscopically, but this showed a very diffuse and severe acute change. There was uniform and extreme edema, and in many sections the majority of myocardial cells were necrotic. This lesion was patchy in distribution; areas of necrosis varying in size from a single cell to foci of macroscopic dimensions. The necrosis, being very acute, showed various transitions in its progress, but there was little or no cellular reaction. The blood vessels of the myocardium did not present any obvious lesions, and there was no recognizable relation between areas of necrosis and vascular supply. No fibrous scars or foci of round cell infiltration were present, that is to say, no evidence of previous injury and repair was found. Perinuclear pigmentation was increased in amount. The general interstitial edema of the myocardium was very striking, being indicated by the presence of an abundant albuminous granular precipitate and of vesicular bodies everywhere within the interstitial tissue and between capillary walls and muscle fibers. Vacuolation of cells, indicating fatty degeneration, was inconspicuous and confined to a degenerating cell here and there. Fatty degeneration obviously played a relatively unimportant part in the lesion present. The important and characteristic lesion was myocardial necrosis, represented by a granular disintegration of the cells. No diffuse hyalinization analogous to Zenker's degeneration of voluntary muscle was present, but primarily a breaking up of cellular contents into granules of varying size. The earliest apparent change in many cells was a "balling up" of material composing the Q-bands, while Krause's membrane still persisted. The granules thus formed stained less intensely with phosphotungstic acid hematein than the normal Q-bands. The regular striations then disappeared, although large distorted hyaline transverse striations might appear by what seemed to be a coalescence of adjacent granules.

Two types of disintegration may ensue on these earliest changes: There may be a complete or partial solution of granular material so that only shadowy collapsed cellular remains persist, consisting of numerous delicate longitudinal threads; or dense irregular masses of hyaline material may appear with innumerable granules between. Often in the latter event the volume of the cell is increased beyond the normal, and a particularly dense mass of hyalin may form a transverse band across the cell, causing its surface to bulge perceptibly. The granules varied in their staining properties, some appearing basophilic, others acidophilic. The nuclei in the course of this process first become shrunken, vaculated or pyknotic, and then disappear. Although cellular reaction is very inconspicuous, occasionally necrotic cells containing hyaline masses and granules are invaded by mononuclear phagocytes, a few of which are to be seen also between cells. No polymorphonuclear leukocytes are present. Certain cells in early stages of degeneration contain numerous small vacuoles, indicative of fat, always situated within the sarcoplasm between muscle fibrils. These cells also may undergo granular disintegration, as described above. It is of some importance, as bearing on the structure of myocardium, that very frequently one observes necrosis of a heart muscle cell sharply limited by the intercalated disk between two cells, as if each cell were a physiologic unit, rather than merely a portion of syncytium. The necrosis is quite similar in appearance to that occurring in the heart sometimes in diphtheria, except that it is more diffuse and there is less evidence of cellular reaction.

CASE 2.—*History.*—A white woman, aged 45, who was admitted, April 10, 1920, complained of "shortness of breath." The diagnosis was: hyperthyroidism; chronic myocarditis; pleuritis (chronic fibrous), bilateral; acute bronchitis. She had been married twenty years. Her husband died one year before she was admitted of "tuberculosis of the throat." Six children were living and well. There had been no miscarriages. The patient was in the habit of drinking two cups of tea and two cups of coffee daily. She did not use alcohol or drugs. She had been engaged in housework eight hours a day in private homes for the last year, previously working in her own home.

There had been no headache until the preceding winter, when headaches occurred three or four times a week, and were severe, not localized. Glasses were required for reading. There was no failing vision, inflammation or pain. There was no loss of hearing, pain in the ears or discharge. The patient had always been susceptible to head colds; there was no discharge from the nose, epistaxis or symptoms of obstruction. The patient had worn two sets of false teeth for twenty years. She had had tonsillitis once; no sore throats. She had not been hoarse until recently. There was occasional dull pain in the left lower chest. She never had any severe pain either here or over the precordia. There was no palpitation. She was short of breath as a child, and had had shortness of breath most of her life, but had never awakened from sleep at night with it. She had had a cough almost every winter for the last five years, accompanied by much expectoration, more marked in the morning. The preceding January the patient raised about one-half cup of bright red blood following an attack of coughing. For a week following the sputum was blood-streaked. She had had no chills and no night sweats. She ate regularly, with good appetite. The bowels were regular without catharsis. The patient said the blood she raised last January probably came from the stomach. Menstruation started at 17. The last period occurred in January, 1920. Menstruation had always been regular until the spring of 1919, when she had amenorrhea for four months. There had been no pain or metrorrhagia. The best weight had been 155 pounds twenty-five years before; the weight was 130 pounds one year before. She lost 15 pounds following the death of her husband and an attack of tonsillitis.

Four months before, the patient had a very severe headache, much worse than ever before. She felt nauseated and sick at her stomach, although there was no severe pain in the stomach region. At this time, following a severe attack of coughing, she raised about one-half cup of bright red blood, which, she recalled, was not frothy and came up without effort. She went to bed and remained there three days without medical attention. She then got up, but was able to do only light housework. The shortness of breath which had troubled her more or less all her life, and especially during the last two years, had become aggravated. She since then easily became short of breath, even without exertion. Since that time also the cough which she had had most of the winter had become worse. It had been accompanied generally by thick, tenacious sputum, and there had been considerable expectoration in the morning. During the last week she had not been able to sleep because of severe discomfort and dyspnea at night.

Physical Examination.—She was fairly well developed, poorly nourished, and lay in bed propped up on pillows. She was a little dull and retarded mentally. The hair was grayish brown, of normal amount and texture. The face was somewhat pinched. The lower jaw and the malar bones were prominent. The skin was brownish, normal in texture, felt

somewhat clammy, and there was no eruption. The pupils were equal in size, and reacted to light and distance. The sclerae and conjunctivae were normal. There was no photophobia, lacrimation, diplopia, palsies, lid-lag or exophthalmos. There was marked lateral nystagmus to the left, less so to the right. The lips were cyanotic and dry, with no herpes, ulcerations or fissures. The teeth were all missing; plates were worn. The gums were of normal redness, with no bleeding, lead line or pyorrhea. The tongue was dry, not coated, and protruded in the midline; there was a fine tremor; no mucous patches were noted. The thyroid was questionably palpable. No lymph glands were felt. Pulsation in the carotids was strong. There was no stiffness or tracheal tug. The thorax was symmetrical, of long, narrow type. With deep respiration the thorax seemed to move *en masse*. The movement was equal on both sides. Breathing was rapid, shallow, and not abnormal in type. The breasts were equal in size, with thickly pigmented areolae and nipples. There were no masses or tenderness. The apex impulse in the fifth space was 10 cm. from the midsternum. It was very forcible and tapping, and there was a suggestion of a thrill at the apex. Auscultation revealed a loud, booming first sound. No murmurs were heard at the base or the apex. The rhythm was absolutely irregular. The rate was about 120 per minute. The left border of the heart was percussed 12 cm. from the midsternum; the right was 4 cm. Supracardiac dulness was 6 cm. The radial pulses were equal, but absolutely irregular in rhythm, full and bounding, suggestive of the Corrigan type. The rate was 120 per minute. The walls were easily compressible, but not sclerosed. The blood pressure was: systolic, 160; diastolic, 68. On examination of the lungs, tactile fremitus was not increased. The percussion note was tympanitic in front and back except behind over the body of the right scapula, and between this area and the spinal column where the note was dull. On auscultation a few small, moist râles were heard in the second right interspace near the sternal margin, and also behind just beneath the spine of the right scapula. Over the area in the region of the scapula the breathing was bronchovesicular in type. The upper limit of dulness of the liver was over the sixth rib. The edge was felt 1.5 cm. below the costal margin in the midaxillary line. The surface was smooth and hard. The edge was sharp. It was not tender. There was a rapid tremor of both hands; no clubbing of the fingers. The nails were blue, and the fingers were congested.

Summary.—A poorly nourished middle-aged woman, with a negative family history but a history of exposure to tuberculosis by her husband, who died of "tuberculosis of the throat" one year before, had had measles, whooping cough, pneumonia, scarlet fever, mumps and tonsillitis. Besides these of importance in her present history were headaches, which she had often throughout the last winter, with which she would awaken and which left her in the late afternoon, and the cough which she had had every winter for the last five years, which was accompanied by much expectoration of thick sputum. The main symptom of her present illness was shortness of breath. She stated that she had had more or less of this all her life, but it had grown worse of recent years, and had become especially noticeable the last five months. Four months before admission she raised about half a cup of bright red blood following a severe and prolonged attack of coughing, and had not been able to do anything but light housework since. She coughed frequently, and generally raised thick, tenacious sputum. The main findings in the physical examination were cyanosis of the lips and hands, dulness over the right scapula with bronchovesicular breathing, a few small, moist râles in the same region, and râles in the second right interspace in front of the same type. The heart was enlarged; the rate, 120 per minute, irregular, with no murmurs. The first sound was loud, and there was a purring feel to the apical impulse, but no definite thrill. The liver edge was palpable in the midaxillary line 1.5 cm. below the costal margin. Its surface was hard and smooth; its edge, sharp but not tender. The radials were equal, but there was absolute irregularity. The blood pressure was: systolic, 160; diastolic, 68.

The diagnosis was: chronic myocarditis; auricular fibrillation; chronic bronchitis; pulmonary tuberculosis (?).

Clinical Course.—April 11, the apex was well localized in the fifth space 11 cm. to the left of the midline. The impulse was tapping in quality. The right border of dulness was 5 cm. The first sound at the point of maximum impulse was snapping and loud, followed by a short, soft, systolic murmur. No diastolic murmur was heard. The second sound was not increased. There was no thrill. The rhythm was absolutely irregular, indicating auricular fibrillation. The patient was moderately cyanotic. The pulse was of moderate size. There was no marked deficit. There were diffuse râles and ronchi throughout both chests. The cardiac condition was probably a mitral stenosis with auricular fibrillation.

April 12, the blood pressure was: systolic, 145; diastolic, 95. The vital capacity was 1,000 c.c.

April 13, the heart measured 12 cm. to the left. The action was very rapid and irregular. There were cardiac hypertrophy and auricular fibrillation.

April 14, the heart sounds were irregular and rapid. The first sound was very snapping in character, with an accompanying systolic murmur. The second sound was heard. There was no diastolic murmur. In the left interscapular region behind, there were a few fine, crackling râles, and breathing was bronchovesicular in character. The blood pressure was: systolic, 170; diastolic, 80. The vital capacity was 1,300 c.c.

April 15, the blood pressure was: systolic, 160; diastolic, 38 (?).

April 17, the patient was noted as a cardiac case who came in about a week ago pretty well decompensated. The blood pressure was 160, temperature 101.6. The pulse ranged between 100 and 138, with a slight deficit. She was very dyspneic, orthopneic and cyanotic. She was much relieved by bleeding 400 c.c.. Digitalis, 1.5 gm., was given without effect. Forty-eight hours after this she was started on 0.2 gm. every four hours. After six doses of this it had to be discontinued because of vomiting. There followed an immediate drop in the pulse to 90, with about 10 deficit. Since this, the pulse had gone up slightly, but the general condition seemed to be better. She was comfortable. There was only slight dyspnea, and the appetite was fairly good. Her history was pretty definitely that of tuberculosis, but so far the sputum had been negative for acid-fast bacilli.

April 19, the blood pressure was: systolic, 165; diastolic, 70. The vital capacity was 1,100 c.c.

April 21, the blood pressure was: systolic, 165; diastolic, 95. The vital capacity was 1,200 c.c.

April 25, the patient's condition remained about the same. Her temperature still ranged between 101 and 99, and the pulse, in spite of continued doses of digitalis, ranged between 90 and 128. This day her pulse, for the first time, had been entirely regular, reaching 120 on two occasions, and the patient said she felt better today than she had since her entrance.

April 26, the patient in the morning was very weak and cyanotic, and through the night she had been quite irrational. The temperature was 103.6, but no basis for this could be found. Examination of the lungs was entirely negative.

April 27, it was noted that the patient had entered the hospital thirteen days before with a temperature of 101.6, the pulse ranging between 130 and 138. There was auricular fibrillation with a good deal of cyanosis and dyspnea, the latter relieved by bleeding 400 c.c. Digitalis was administered at different times, in doses continued until vomiting was produced, without any appreciable effect on the heart, pulse or general condition of the patient. The temperature ranged continually between 99 and 101, and it was really thought that little improvement could be hoped for. With the absence of response to digitalis, it was thought that either the myocardium had reached the end of its reserve power, or that there was an underlying tuberculosis, or an element of hyperthyroidism. For the last three or four days she was rather irrational most of the time, especially at night, when she attempted frequently to climb out of bed. This day the temperature rose to 103.5. She became increasingly weaker and more dyspneic, and finally comatose about four hours before death, and died without other change.

The blood, April 11, was: hemoglobin, 90 per cent.; red blood cells, 5,740,000; white blood cells, 10,600. Smear revealed: polymorphonuclears 74 per cent.; lymphocytes, 10 per cent.; large mononuclears, 12 per cent.; eosinophils, 4 per cent. There

was no irregularity in the size, shape or staining of the red blood cells. April 18, white blood cells, 9,300. April 24, white blood cells, 10,900.

Necropsy.—Nineteen hours after death, the body showed slight edema of the legs. The eyes were negative. There was no lymph glandular enlargement. The left pleural cavity was obliterated by fibrous adhesions; old adhesions also were at the right apex. There was a small amount (2 gm.) of pinkish tissue within mediastinal fat, suggesting thymus. The heart weighed 250 gm. The right side was dilated. The myocardium was a deep brownish red. There was no evidence of fatty or fibrous change. The lungs were congested posteriorly, and were edematous. The small intestine and colon showed distinct enlargement of solitary follicles. The spleen was enlarged, weighing 200 gm., and showed passive congestion and prominent lymphoid follicles. There was passive congestion of the liver. The kidneys were congested. The thyroid was moderately increased in size. It had a pinkish color and was somewhat translucent. Its cut surface was more nodular than normal, having a finely lobulated appearance, the lobules varying in size. It apparently contained very little colloid.

On microscopic examination the heart showed marked interstitial edema of the myocardium with a few focal necroses in the ventricle and more extensive focal necroses in the right auricle. There was intense capillary congestion in the lungs, and chronic passive congestion, but no evidence of infection. The liver showed central congestion, moderate fatty change and numerous vauolated nuclei, suggesting intranuclear glycogen. The spleen showed passive congestion and lymphoid hyperplasia. The intestine showed hyperplasia of the lymphoid tissue. The kidneys were congested and edematous. The ovary contained a few follicles. Sections through the mass in the region of the thymus showed a small amount of residual thymic tissue. The thyroid gland was diffusely hyperplastic, only a little colloid remaining in a follicle here and there. The acinar cells were high cuboidal. Eosinophilic epithelial cells were abundant, and there were a few foci of lymphocytes.

The ventricular myocardium showed an extensive general edema and an increase in perinuclear pigment. Sections stained for fat revealed a negligible amount of this substance. No fibrous scars or foci of round cell infiltration were seen. The blood vessels appeared normal. There was no diffuse necrosis of the myocardium, such as was found in Case 1, although occasional isolated necrotic cells invaded by mononuclear phagocytes were to be found in the ventricular muscle. Sections through the right auricle contained numerous small foci of necrosis involving several muscle fibers. In these areas there was considerable cellular reaction within and about the dead cells. Most necrotic fibers had been invaded by numbers of mononuclear phagocytes, and the cellular contents had disappeared, leaving only a thin sheath filled with a row of the invading cells. Many of these large mononuclear cells were present in the neighborhood, though there was an absence of polymorphonuclear leukocytes. The focal lesions present in this heart were obviously of longer duration than those observed in Case 1, and they were of such a distribution that they might easily have been overlooked in a routine examination.

COMMENT

Both the cases described are undoubted examples of hyperthyroidism, the one with, the other without exophthalmos. The thyroid gland in each was hyperplastic, conforming in pathologic changes to the glands associated with symptoms and signs of hyperthyroidism. The most prominent clinical manifestation of the disease in each was cardiac weakness and auricular fibrillation; and in both hearts myocardial necrosis was found. The extent of myocardial necrosis, however, was quite different in the two, being very extensive and diffuse in one, limited and focal in the other.

The cardiac lesions are acute and of short duration, in the first case possibly only a few hours; consequently they cannot be thought of as contributing to the general disturbance of cardiac activity, which had lasted a considerable period of time, though in the second case the lesions of the auricle may conceivably be related to auricular fibrillation, the duration of which is not known, but which was present seventeen days under observation in the hospital.

MacKenzie [4] records two cases of auricular fibrillation in which lesions within the auricle were found postmortem. He states concerning the cause of auricular fibrillation that "at present we can only say that one predisposing condition is certain organic changes in the muscle wall of the auricle."

One is confronted with the question whether the myocardial necrosis is a direct outcome of an underlying progressive change in the cardiac muscle due to the action of products of the diseased thyroid gland or whether they are the accidental effect of an additional and different injury superimposed on an abnormally functioning myocardium. Myocardial necroses, of the kind present in the first case at least, is usually associated with severe infections, such as with the diphtheria bacillus or the streptococcus, and is regarded as indicative of extreme intoxication. No evidence of such an infection was present in the cases under consideration, though the slight terminal rise in temperature may possibly indicate the presence of infection which was not established by postmortem examination. Certainly such a terminal invasion as may have occurred was not of a character or virulence which presumably under ordinary circumstances would have given rise to acute myocardial necrosis. On the other hand, the evidence available is against the assumption that necrosis is the event of a progressive degenerative myocardial change; for there are few instances on record in which actual destructive lesions of heart muscle have been observed in exophthalmic goiter, even in those dying of cardiac failure. In Case 1 it seems possible that the removal by thoracentesis of 1,200 c.c. of pleural fluid three days before death may have directly contributed to the sudden widespread destruction of heart muscle. Following this operation there was edema of the lungs and a rise in pulse from around 70 to 112 per minute. While this increase in pulse rate is not remarkable in itself, as the heart beat had been as high as 140 while under observation in the hospital, it may have been associated with a relatively greater cardiac strain sufficing to exhaust the myocardial reserve. Such a possibility is not present in Case 2, the only obvious change in the patient's condition being a rapidly rising temperature, beginning twenty-four hours before death.

In the absence of demonstrable severe infection, it seems rational to assume that the myocardiums in these cases were laboring in a state bordering on complete exhaustion, and were abnormally susceptible to injury, such as may have been caused by an undiscovered terminal infection (perhaps indicated by the terminal rise in temperature), or by sudden functional strain. In the case of exophthalmic goiter reported by Fahr in which myocardial necrosis was present, the patient died of a paratyphoid infection, which ordinarily does not produce destructive lesions of the heart.

Whatever the nature of the terminal injury, it appears to attack directly the muscle cells, for there are no demonstrable vascular lesions; and while an impaired circulation in the myocardium is indicated by a general edema, this is equally present in each heart, though necrosis is diffusely present in only the one.

It is evident that the underlying disturbance of cardiac activity in these two cases was not associated

4. MacKenzie, James: Diseases of the Heart, 1918, p. 217.

with any apparent lesion of the myocardium, since the lesions present were obviously of short duration. It is suggested, however, that a myocardium laboring under such conditions is hypersusceptible to the action of injurious agents, which may cause widespread necrosis sufficient to bring about a rapidly fatal termination.

The view is now generally accepted that the cardiac disturbances of hyperthyroidism are due to the action of toxic products of the diseased thyroid gland,[5] but the manner in which the result is effected is not thoroughly understood. It is thought that primarily the nervous mechanism is the point of injury, though there are those who agree with Fahr that the myocardium may be injured directly by the same agency. The evidence for the latter view is based on the presence of scars and round cell infiltration of the myocardium in a few cases, and the fatty degeneration frequently demonstrated. The presence of acute necrosis in the present cases would seem to support this assumption; but because of the rarity of such a lesion in persons dying of exophthalmic goiter, it is better perhaps to regard the necrosis as a result of an injurious agency other than that responsible for the underlying cardiac disease, assuming that the myocardium has a greater susceptibility to injury than the normal.

The opinion has been expressed that at least a part of the intoxication in exophthalmic goiter, especially that affecting the heart, may have its source in a persisting thymus so frequently found in such cases. According to the statistics of Capelle,[6] a "thymus persistens hyperplastica" has been found in about 95 per cent. of fatal cases of this disease, whether death was due simply to the severity of the disease or occurred during the operation or twenty-four hours after strumectomy. This view has found support in the reported beneficial effects of surgical removal of portions of the thymus,[7] and it is the opinion of some that this gland is qualitatively, not merely quantitatively, altered and may cause toxic as well as mechanical injury to the heart. The presence of a relatively small residuum of thymic tissue in each of these cases seems contrary to such an hypothesis, for in both these individuals cardiac symptoms were the most distressing and serious evidence of the disease; and while, of course, we do not know that a mere fragment of thymus may not suffice to act injuriously, the finding of a large thymus would perhaps have been more in harmony with the view that this gland may be a contributing source of substances injurious to the heart.

5. Thorel, C.: Ergebn. v. Lubarsch and Ostertag. **17**: 90, 1915.
6. Cited by Halsted (Footnote 7).
7. Halsted, W. S.: Harvey Lecturers, 1913-1914, p. 224.

American Society for the Control of Cancer.—In a summary of the past year's work, the society reports there are now nine regional districts made up of from two to five states each under the direction of an eminent physician or surgeon. Thirty-three states, exclusive of Hawaii, are also organized, with chairmen. During the past year educational campaigns were carried on by means of "cancer weeks" in New York City, Ohio and Colorado, and "cancer days" in Scranton and Sayre, Pa. The Maine committee is planning a cancer day, Arkansas, a cancer week, and Texas will designate April as cancer month. At the invitation of the American Medical Association, an exhibit was made at their annual meeting in New Orleans. Lectures have been given before medical organizations, literature has been widely distributed in the form of pamphlets and circular letters, and articles have been furnished for various society publications. The organization now has 1,200 members and contributors, and an attempt is being made to secure a national charter.

THE PROBLEM OF THE NARCOTIC DRUG ADDICT

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The report of the Committee on the Narcotic Drug Situation in the United States, adopted by the American Medical Association at the Annual Session in New Orleans, 1920, and published by the Council on Health and Public Instruction as one of its education pamphlets, has shown that existing conditions relating to narcotic addiction constitute a grave menace to society.

Since reputable physicians generally lack familiarity with the facts regarding the addiction evil, because these cases are rarely encountered in ordinary medical practice, it seems proper at this time to call attention to some of the more important features of that report for the sake of needed emphasis.

PREVALENCE OF ADDICTION

That narcotic drug addiction does exist, though its prevalence is enormously exaggerated by those who would have it persist while deploring its extent, and that it is common among degenerate denizens of the underworld, criminals, prostitutes, mental defectives, their condition rendered more hopeless and pitiable as social outcasts because of the slavery to the drug, cannot be denied. That in large centers of population, clerks, salesmen and women, bookkeepers, mechanics, artisans, conductors and motormen of street cars, and chauffeurs of public and private vehicles are found addicted to the use of habit-forming narcotic drugs, constitutes a source of danger to every one, both physical and moral. It must also be admitted that, in isolated cases, victims of drug addiction may be found even among the educated and leisure classes; yet, though clandestinely maintained by these people, it may be in an atmosphere of supposed refinement, nevertheless the insidious danger of thus spreading the moral contagion may even be enhanced by its apparent respectability, and it must not therefore be compromised with or condoned in any class or social station. The vice that causes degeneration of the moral sense, and spreads through social contact, readily infects the entire community, saps its moral fiber, and contaminates the individual members one after another, like the rotten apple in a barrel of sound ones.

HAGUE CONVENTION BASIS OF LAWS

In 1912-1914, an international convention between the United States and other powers was signed at The Hague, ratified by the Senate and proclaimed by the President, March 3, 1915, entitled, "Suppression of the Abuse of Opium and Other Drugs."

This international treaty convention thus having become the supreme law of the land, and paramount to the mere act of a national legislature, the United States Congress, in conformity therewith, enacted three laws: one, regulating the importation and exportation of opium; another, imposing a prohibitive tax on smoking opium; and the third, known as the Harrison Narcotic Law, designed to regulate and control the domestic distribution of opium and cocain.

HARRISON LAW

While nominally a tax law, entrusted for administrative purposes to the U. S. Treasury Department, the

main purpose of the Harrison law was not to produce revenue for the general purposes of government, but rather, specifically to carry out our national treaty obligations, by establishing control of the distribution of the narcotic drugs in the United States, so as to prohibit their abuse, and to restrict their use to the proper channels of legitimate medical, scientific, dental and veterinary practice.

Through failure to recognize the serious international character of this obligation of the United States government, and because of the license tax imposed, which with its other regulations may appear to some as unnecessarily burdensome, some loose thinking has been indulged in, and criticism of the Harrison law has been broached, even to urge that it be repealed. On this basis has arisen a sinister propaganda having for its object the creation of popular sentiment hostile to the requirements of this law, so as to render futile or difficult the most earnest efforts of the government authorities to enforce it.

Thus it may be seen how vital a matter it is to our national honor, in respect to its solemn treaty obligations, that the federal government shall, in good faith, actually enforce the provisions of this act of Congress.

STATE LAWS

It is equally important that the several states, recognizing this fundamental motive in human progress, should enact legislation supplemental to and in harmony with the federal laws, which shall enable the exercise of the special police powers of the states, in cooperation with the federal authorities, in giving full effect to the clear purpose and intent of this federal statute. Such laws have been written on the statute books in Massachusetts, Rhode Island and Pennsylvania.

LAW ENFORCEMENT INEFFECTIVE

That the Harrison law has failed to prevent improper use and distribution of narcotics is a proper and just criticism. Failure to secure intended results of a law should not be charged to inherent weakness in the law itself, necessarily. In this case, it is clearly the natural result of inefficient efforts in its enforcement.

Failure, also, on the part of the state governments to provide adequate cooperation through state legislation and application of their police powers has contributed to make difficult, slow and expensive the prosecution in the federal courts of a small number of cases against physicians and druggists, violators of the law, which cases ought never to have been necessary to proclaim the binding authority of the law, if state laws had been in existence prohibiting the acts complained of in these indictments.

Then the World War engrossed the activities of governments, and it was not until March, 1919, that this law was declared by the U. S. Supreme Court to be constitutional, or that a determined attempt had been made to enforce it. Since that time, however, various other court decisions of an interpretative character have been rendered, which have materially contributed toward making the Harrison law a most valuable and efficient legal instrument in preventing the abuse of narcotic drugs. Convictions are being obtained regularly in the courts against dealers, druggists and physicians engaged in its violation.

IMPOSITION

The report of the Commissioner of Internal Revenue for the year 1920 shows that during that period the sum of $1,513,919.50 was collected under the Harrison law. It is also a matter of record that Congress had appropriated for its enforcement for that period the sum of $750,000. The department employed a field force of less than 175 men for the entire United States, and actually expended in the cost of administration of the service, and in the operations for enforcement of the law together, less than the sum appropriated. Since this act was not intended to operate as a revenue producing measure, it does seem but fair to demand of the government that no less than the total amount of moneys collected under the law in fees, fines, taxes, etc., shall be expended effectively in its proper and adequate enforcement. Otherwise, complaint of oppression in being compelled to pay a tax of $3 for the nominal license when the moneys collected are not used for the purposes of enforcement of this law, cannot be regarded as wholly groundless.

CONSPIRACY

From the beginning of serious attempts made to enforce the Harrison law, evidence has accumulated of a widespread and well organized conspiracy that has arisen and is in active operation throughout the country, aiming to defeat the purpose of the law, or to circumvent its requirements. Those who find it profitable to exploit the victims of drug addiction by supplying them with narcotic drugs, while at the same time maintaining their addiction, through prescribing or dispensing to them over prolonged periods or quite indefinitely, would most naturally seek to retain their privilege as purveyors, and desire to be permitted to continue their exceedingly profitable traffic, if not legally, at least unmolested, because it is carried on under the pretense of medical treatment for an assumed "disease."

PROPAGANDA

Public opinion regarding the vice of drug addiction has been deliberately and consistently corrupted through propaganda in both the medical and the lay press. Cleverly devised appeals to that universal human instinct whereby the emotions are stirred by abhorrence of human suffering in any form, or by whatever may appear like persecution of helpless human beings; lurid portrayals of alleged "horrible suffering inflicted" on addicts through being deprived of their drug; adroit misrepresentation of fact; plausible reiteration of certain pseudoscientific fallacies designed to confuse the unscientific mind; downright false statement, and insidious innuendos assiduously propagated are brought to bear on an unsuspecting public to encourage it to feel pity for the miserable wretches, "whose name is legion" we are told, and whose "sufferings," hysterically exaggerated, are graphically served up to be looked on as if they were actually being made "victims of persecution" by the authorities, who would deprive the wretches of even the drug they crave!

The "righteous" narcotic practitioner, claiming that he alone understands their plight and can relieve them, standing ready as a ministering angel of mercy to prescribe for their infirmity, begs the right and privilege of placing in their hands for self-administration the drug that has debased them and brought them in his power—for as much money as he can squeeze out of them!

The shallow pretense that drug addiction is "a disease" which the specialist must be allowed to "treat," which pretended treatment consists in supplying its victims with the drug that has caused their physical and moral debauchery, and that the regular physician

because lacking in their familiarity with the addict, his habits, desires and emotions, is therefore incompetent to assume his proper treatment, has been asserted and urged in volumes of "literature" by the self-styled "specialists."

Significant articles of sensational character dealing with narcotic addiction have appeared in the public press during recent months, denouncing the alleged "persecution" of the addict and of his ministering angels, the narcotic practitioners, by local, state and federal authorities, all of them characterized by a certain style indicating their probable emanation from a common source, and well calculated to create in their favor popular prejudice, in case their business or practice were called in question before some trial jury. Reputable members of the medical profession have been constantly libeled with the assertion that "the doctors have produced the addicts in the beginning," through careless administration of the drugs, and their "innocent victims" ought all the more to enjoy the sympathy and solicitude of the public; that the average doctor is an ignoramus, and is not competent to be trusted with dangerous drugs from which such evils may be evoked. Such fallacies may be found in *American Medicine, Illinois Medical Journal, American Journal of Clinical Medicine, Medical Record, American Journal of Public Health,* Washington *Post,* Chicago *Tribune,* New York *Tribune,* New York *Times,* New York *World,* New York *American, Harvey's Weekly, New Republic, Metropolis* and others.

Emboldened by such successful publicity for their cause, which is the business interest, their emissaries have appeared wherever a hearing could be made useful—before legislative committees, boards of health, governors of states, in the halls of Congress, before administrative officials of the U. S. Departments of Justice and Internal Revenue, and even before reference committees of the House of Delegates of the American Medical Association.

SCRIPT DOCTORS

In the parlance of that underworld where the narcotic addict finds congenial atmosphere there exists a swift and secret means of communication—a sort of "free-masonry" of their kind—by means of which the "script doctors" in a community are well known and accessible to all the addict fraternity. These doctors, having a monopoly of first-hand knowledge of the drug addict, his habits, sufferings, emotions and desires, whose heart bleeds in sympathy for the addict with his intolerable craving (for often it appears that the "doc" himself is addicted to the "dope"), whose defense of the business of supplying them with drugs is ever ready, suave and plausible and, whose business sense, greed for money, is the creed of their professional practice—these are the "script doctors" invariably patronized by the addict, not because he has need for the advice or skill of the physician, but solely because he knows that the "doc" will give him his "script" or the "dope" itself, in whatever amount he says he needs. The drug thus "lawfully" obtained from a familiar druggist, of full weight, and of pure quality, at about 7 cents a grain, can then be self-administered at his convenience, or shared with a needy friend, or sold in the street peddling trade at sufficient profit to finance his next visit to the "script doctor's" office.

NATURE OF ADDICTION

Tolerance to considerable doses of morphin or heroin may be all too readily acquired, after the first few doses. The amount necessary to produce desired effects then requires to be gradually increased. When the effects wear off, there supervenes a lassitude, mental depression, nausea or epigastric distress, dilated pupils, tremor and hysterical apprehension, even actual fear of imaginary objects. All these symptoms are promptly relieved by another dose of the drug.

The continued habit is evidenced in most of its victims by a peculiar pallor, a sallowness of complexion, anemia, emaciation, untidiness of the person, and generally, the appearance of one prematurely aged; restless irritability of the nervous system, itching of the skin, tremors, insomnia, dilation of the pupils (contracted under the influence of the drug), deranged digestion, loss of appetite, marked constipation, mental depression, impairment of mental function, and finally, by complete perversion of the moral nature—loss of the ethical sense. Osler says: "Persons addicted to morphia are inveterate liars, and no reliance whatever can be placed upon their statements. . . . This is not confined to matters relating to the vice."

An increase of their dose is, apparently, not always necessary. Many have carried on their ordinary business affairs successfully for many years on a satisfactory daily dose of from 2 to 5 grains of morphin. On the other hand, some have consumed 10, 20, 30, and even 70 grains daily for long periods. Eventually, in the terminal cases, an asthenic condition supervenes wherein the subject takes little or no food, dying from the starvation and toxemia, or from effects of some slight injury or intercurrent disease.

TREATMENT

Unless the addict is kept under constant supervision, carefully isolated from contact with every possible source of obtaining the drug of addiction, during the withdrawal period essentially (so that any administration of the drug must be given by the physician, and the addict may not procure any of the drug except from the physician directly responsible for his treatment), the proper treatment of addiction with the purpose of curing the condition is extremely difficult, and can rarely be carried out successfully by the general practitioner. Addicts must be maintained under rigid control, generally in a suitable institution, and should be in bed for from three days to a week during the withdrawal treatment.

Withdrawal symptoms are typical, though not constantly present to the same degree. Some addicts enormously exaggerate their sufferings and complain bitterly, striving to excite sympathy by displaying an hysterical emotionalism, anticipating some concession to humane feeling and another dole of the drug. Others appear to be possessed of a fair degree of poise, evidencing a desire to exhibit their moral stamina, enduring their discomfort with stoicism for the sake of being through with it more quickly. They complain of abdominal cramps, nausea, vomiting, pains in the bones, great restlessness, insomnia and fear. All these symptoms can be masked to a great extent by the administration of $\frac{1}{200}$ grain of scopolamin hydrobromate every six hours for the first thirty-six hours. During this period and, in fact, up to the end of seventy-two hours, the patients are disposed to remain in a semi-hypnotic condition, thirst being their chief complaint; and plenty of water to drink relieves that.

To quiet their restless excitement, sulphonal, choral, paraldehyd, etc., may be used if indicated; but the hot pack, tub bath, drip sheet, and drip enema of physi-

ologic sodium chlorid or of sodium bicarbonate solution aid materially. It appears to make little or no difference in the result whether the treatment is masked by some sedative medication, or whether they are given "the cold turkey" (the addicts' term for immediate withdrawal without any treatment to allay their sufferings). In either case, they are taken off the drug immediately; in from three to five days their vomiting of bile has ceased, their appetite returns, they eat and digest substantial food, they gain in strength and weight, regularly increasing their weight by from 25 to 50 or 100 pounds in two or three months, and they are off the drug, having had none from the beginning of treatment.

In the vast majority of cases, it must be stated by way of caution, the habit has been broken off, and the craving no longer requires that it be satisfied. But it may be reawakened and allowed to dominate the individual again, if he permits any relaxation of his self-control. His cure, in that sense, then, cannot be said to be permanent until he has regained mastery of himself. There is great physical danger, however, if he should relapse, in beginning again to use his previously accustomed dose of the drug; for the tolerance to considerable doses is soon lost, so that beginning anew with the old dose produces acute opium poisoning, and is known to have caused fatal results in a number of such cases.

The explanation of withdrawal symptoms seems to be found in the starvation asthenia of the entire nervous system, including the depressed state of the endocrine gland activities, the obstipation and consequent diarrhea from depression of the splanchnic innervation of intestinal muscle and secretion, and the toxemia resulting from diminished oxidation as well as diminished elimination of excretory substances. The clinical picture is that of severe acidosis toxemia accompanied by profound depression of the automatic nervous system, and is essentially similar to the familiar toxemia of chronic alcoholism and starvation, commonly called "delirium tremens" on account of the delirium present as the prominent symptom in that condition. In both these toxemias, renewed doses of the poison that has produced the condition indirectly immediately covers up the symptoms by renewed depression of the sensory paths of the automatic reflexes.

Immediate and absolute withdrawal of the drug has been routine practice at Bellevue Hospital, Metropolitan Hospital and Riverside Hospital of the Health Department of the City of New York; at Kings County Hospital, Brooklyn, and at the United States Penitentiary, Atlanta, Ga., in all their cases during the past several years. In all these 25,000 cases of immediate withdrawal of the drug, there have been no deaths resulting, nor any suffering permitted that cannot be easily controlled. Of course, those patients suffering from complicating disease of heart, lungs or kidneys received a more gradual method of withdrawal, but were nevertheless subjected to withdrawal from their addiction.

Gradual withdrawal methods have been used at the New York City Prison in some 12,000 cases, partly to avoid criticism on the part of the friends of the prisoners having access to them during treatment. Here it has been found necessary to extend the withdrawal period to not more than two or three weeks.

Personal observation of their condition under treatment, and interviews with the addicts during and after their having been taken off the drug, both at Riverside Hospital and at the penitentiary, gave convincing evidence that the method of immediate and complete withdrawal of the drug is the method that is preferable, by far, in all cases not complicated with organic disease. Both from the medical point of view and that of the more intelligent addicts, the best results are attained in the shortest possible time by this method. Many of them preferred it because thus their durance was not long protracted. The immediate improvement in mind and body, when thoroughly detoxinated, is quite remarkable. Many who had experienced various methods of withdrawal, previously, some as many as seven times in different institutions, including every well-known method that is practiced, volunteered this testimonial of the "cold turkey." Those who were less ingenuous, and said they preferred the gradual withdrawal method, when pressed for reasons, replied, "If we can't get any more of the dope, we want to get what we can while it is going!" Many of the prisoners of lower grade mentality, belonging in the group of correctional class mental defectives, were frank to say "they would go back on the drug, when released from confinement, if they could get it." The higher grade types, however, were glad of their release from the slavery to the drug, expressing their firm determination of staying off for good, but were yet conscious of their own weakness of will, fearing they might relapse in spite of their resolution, if projected among their former associations.

One of the prisoners in the penitentiary, doing time for an offense against the government in time of war—a person who has never been a drug addict and is possessed of a mentality superior to that of the ordinary prisoner—having been closely associated in the prison hospital with those other prisoners then undergoing treatment for withdrawal from narcotic drugs, had been a close and sympathetic observer of, and was intimately conversant with all their sufferings and complaints. This prisoner proved on careful inquiry to be a valuable witness, bringing to the subject evidence that cannot be impugned, gained at first hand and without previous bias or prejudice of any sort. He said:

> I have been in the hospital about eight months, and in the prison for a year. During that time, I have observed under treatment between fifty and seventy-five cases of narcotic drug addiction. I had no idea what a terrible affliction drug addiction is, until I saw its victims here. They represent the very lowest level of humanity; often very young men—mere boys, from 20 to 22 years old—already wrecked! Such men as Victor Hugo speaks of in "Les Miserables": "men who are old, without ever having been young; possessing all the ignorance of youth, without any of its innocence"!
>
> All these cases have been treated by immediate withdrawal of the drug, except those whose physical condition (diseased) required more gradual methods. Generally speaking, from my own observation and from what the men tell me, they do not suffer. They say they have felt altogether better, when they had been gotten off the drug. It seems to revive and stimulate their will power, which had been put in abeyance by the drug. I am gratified with the results of the treatment. Never has it failed in a single case to break off the habit, and in no single instance have I seen a bad result from the treatment. The men also express their gratification over the relief it affords them. The craving seems to be due, in part, to uncertainty; as soon as the habitué realizes here that there is no chance of his getting any "dope," he feels better in his mind, and his will is strengthened to stay off.
>
> Never in a single instance have I heard a man complain of his having been cut off the drug completely, that is, after two or three days to a week. I have sympathized with these poor fellows, and they have given me their confidence. If there had been any complaints, I would have heard them; but not one complaint about the treatment have I heard in the hospital. Dr. Weaver is as kind and sympathetic, as humane as any doc-

tor could be, and I thoroughly approve the methods used and the results obtained by him, which I regard as the best that could be done for these men. Once they are off the drug, they are in a different state of mind. If sound and well physically, I believe that is the way to do it. I know the method is a most humane way to deal with them.

In my own town I have known narcotic practitioners to try to taper them off, but I have never known a case to be cured by tapering off. It is a false confidence inspired by the doctor, who yields to the infirmity of an addict, listens to his importunity, and gives him the drug he craves. For he thus shares his infirmity with him, and the responsibility for his unfortunate condition.

I do not see that any good results can be attained by catering to the thing that has caused the evil. You remember how, when Paul was at Ephesus, the silversmiths caused a riot among the people because they wished to perpetuate worship of the silver shrines of Diana, because, they said, "Ye know that by this business we have our wealth." So these doctors who cater to the addicts defend the business because their professional income is dependent on and wrapped up in it. That is the only excuse for them. It is—there is no reason in it.

To break them off the drug habit is practically useless, unless it can be made permanent. If some of these men go back to it, after leaving here cured, that is because their treatment has not been completed. The hospital has done its part, having put the men on their feet physically. To save them from their vicious circle, however, something ought to be done on the outside to guard them from their old surroundings, when they leave here cured.

The first comprehensive series of facts, having real scientific value, that has yet been compiled anywhere in the world, is embraced in the published statistics gathered from analytic study of the nearly 8,000 cases of addiction registered and cared for during about ten months by the Department of Health of the City of New York. These cases were subjected to most careful observation and study by specialists qualified to make scientific analyses and arrive at sound conclusions from them. Except from equally careful and extensive clinical study by the scientific method, which has not been duplicated and which is not likely to be, the conclusions deduced from this source cannot be safely challenged. From these statistics it was shown that:

While some 5 per cent. claimed that an illness was their excuse for addiction, 69 per cent. frankly blamed their "bad associations" for their plight. (Making due allowance for the addict's unreliability of statement, especially when opportunity offers to blame another than himself, we may revise downward the 5 per cent., while there can be no reason to assume that the 69 per cent. were lying, particularly since their testimony was voluntary and likewise self-derogatory.)

Seventy per cent. were under 30 years of age.

Twenty-six per cent. were employed in the business of transportation.

Less than 4 per cent. were suffering from a disease or painful malady which would justify their addiction. (Corroboration of this figure is found in the statement by Dr. Weaver of the U. S. Penitentiary, who found "not more than 3 per cent. of addicts received having some organic disease, such as chronic Bright's disease, heart lesions with broken compensation, or advanced tuberculosis necessitating a more gradual withdrawal of the drug.")

Only 1,580 out of 2,800 received at the clinic were willing to accept treatment for withdrawal of the drug of addiction, so long as they could secure a supply of the drug from street pedlers or from a "script doctor." These were given hospital care, withdrawn from the drug by the scopolamin method, and kept for six weeks under careful reconstruction training afterward, until able to be discharged in good physical condition, and able to do an honest day's work. Within three months it was found that a large proportion of them had already relapsed to their old habits and associates, notwithstanding every effort made to assist them with moral support and friendly solicitude by every agency possible. Pedlers from their own underworld, well known to them, were ready at the dock to meet every boat returning from the Island Hospital, eager to supply them with the drug once more, even gratuitously, so anxious were they to rebuild their clientele.

SOLUTION OF PROBLEM

Any solution of this vexing problem must necessarily resolve itself into some plan for abolishing the total supply of drug that may be available to the addict from any and all sources. There are two main sources of supply, viz., the pedlers, most of whom are themselves addicts; and the trafficking doctor, the narcotic practitioner, the "script doctor" who prescribes or dispenses the drug to them for self-administration. The pedler, who deals largely in smuggled drugs, constitutes a comparatively simple police problem, easily solved by thoroughgoing enforcement of existing laws. The doctor is more difficult of apprehension, for he hides behind the cloth of a reputable profession, and pretends that he is treating a "disease" when he is really selling his professional privilege in a sordid market for a very large return in money. One man, now serving his term in the penitentiary, wrote from 100 to 2,600 prescriptions each week for about ten months, and a total of more than 23,500 in that time, at about $3 each! Many of these "scripts" call for as much as 500 grains of morphin or heroin at one time, and these doctors do not hesitate to give addicts several "scripts" at one time, or even send them in the mails to a distant city. One "respectable addict," meaning a person who was willing to pay a large fee, has testified that she paid one doctor $1,000 monthly for a period of thirteen months, "to keep her in good health."

It has been estimated that 90 per cent. of opium imported into the United States is used for other than proper medicinal purposes. Much of this is ostensibly exported, but is in reality merely transferred by connivance to the underworld traffic, appearing in the hands of the pedlers as "smuggled goods," and sold at fancy prices according to the necessities of the fraternity at the time.

The remedy consists in abolishing the addicts' drug supply, first by prohibiting the prescribing or dispensing of these drugs to them by physicians, under severe penalty for such violation, and secondly through vigorous enforcement of both federal and state laws dealing with narcotic abuse.

AMBULATORY TREATMENT

The so-called reductive dosage ambulatory treatment of addicts, defined by the U. S. Bureau of Internal Revenue as the "prescribing or dispensing of a narcotic drug to an addict, for self-administration at his convenience," has been uniformly condemned as a method of treatment by every competent medical authority, and is definitely prohibited by law in Massachusetts, Rhode Island and Pennsylvania, as well as by implication, certainly, in the Harrison law and the court decisions that have been rendered to date relating to it. A recent ruling by the U. S. Commissioner of Internal Revenue stated that:

This office has never approved the so-called reductive ambulatory treatment of addicts, for the reason that where narcotics are furnished to an addict who controls the dosage himself, he will not be benefited or cured.

It is well recognized by medical authorities that the treatment of addicts, with a view to curing their addiction, which makes no provision for confining them while the drug is being withdrawn, is a failure, except in a relatively small number of cases where the addict is possessed of a much greater degree of will power than is possessed by the ordinary addict. If a physician, pursuant to the so-called reductive dosage ambulatory treatment, furnishes drugs to an addict who is financially unable to enter an institution for the cure, and whom the local, state or other officials are unable to put in a place of confinement where he may be cured without expense to himself, such physician will be held strictly accountable, and his furnishing of narcotics to an addict for an extended period will be regarded *ipso facto* as showing lack of good faith in the treatment of an addict and that he had been merely satisfying the cravings of an addict.

The conclusion, therefore, seems ineluctable that a physician who supplies narcotic drugs to an addict, knowing him to be an addict, or who connives with or condones such an act, is either grossly ignorant, or deliberately convicts himself as one of those who would exploit the miserable creatures of the addict world for sordid gain. It may be that he is himself addicted to the drug and has thus become a victim of its power to produce such profound moral perversion. For such there can be but one verdict. Suspend or revoke his license to practice medicine, by all means. Let him suffer the penalty of the law, and may God have mercy on his soul!

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ENLARGEMENT OF THE SPLEEN IN EXPERIMENTAL ACIDOSIS*

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It has been previously noted in a study from this laboratory [1] that the spleen in heat stroke and insolation is enlarged; and in the bodies of persons dying from uremia, a similar condition is usually encountered. In forty-six deaths from uremia,[2] the average weight of the spleen was 195 gm., the ratio to the body weight 1:297. If 140 gm. is taken as an average weight for the human adult spleen,[3] the ratio of the spleen weight to the body weight with these forty-six cases of uremia would average 1:414. It was also found that with death from uremia at about the age of 50 or beyond, the spleen does not enlarge (compare accompanying chart). Another way of stating the enlargement of the spleen in these forty-six cases of uremia is that as compared with the 140 gm. assumed as a fair average for the normal weight, the increase in the average weight of the spleen with uremia was 39.2 per cent., an enlargement of about two fifths.

In studying the probable cause of the enlarged spleen in these conditions it is well to call attention to the leukocytosis in heat stroke mentioned by Gordon,[4] who also speaks of the spleen as being "congested." These changes have been demonstrated experimentally by Nakahara,[5] who exposed mice to a dry heat of from 55 to 60 C. for five minutes. There was an immediate fall in circulating white cells, and then a sharp rise to 200 per cent. of the original number. This increase persisted for two or three weeks, when it gradually subsided to the original number. The spleen in these mice became enlarged, and this was most marked from six to eight days after exposure to heat, the maximum four times the normal size. The size returned to normal in about fourteen days. On the other hand, a leukocytosis is not constant in uremia and the statement is made that it may or may not be present.

Other interesting similarities between heat stroke and uremia are noted in the symptoms and the alteration in metabolism. Without going into details, attention may be called to the occurrence of marked dyspnea, nausea, vomiting, diarrhea, convulsions and coma in both.

Study of their metabolism has revealed that in uremia and in the abnormal accumulation of heat in the body with heat stroke, such end-products as urea, uric acid and creatinin are retained in the blood. This is illustrated in Table 1, from the work by Gradwohl and Schuster.[6]

TABLE 1.—END-PRODUCTS OF METABOLISM IN BLOOD IN UREMIA AND IN HEAT STROKE

	Urea Nitrogen, Mg. per Hundred C.c. of Blood	Uric Acid, Mg. per Hundred C.c. of Blood	Creatinin, Mg. per Hundred C.c. of Blood
Normal	12- 15	1- 3	1- 2.5
Chronic nephritis	15- 50	1- 4	1- 3
Uremic nephritis	80-300	4-15	4-34
Thermic fever	26- 89	6-14	3- 6.1

Both conditions also are accompanied by an anemia. The decrease in red corpuscles and hemoglobin in nephritis is well known.[7] Insolation gives first a high erythrocyte count and hemoglobin content due to dehydration, but an anemia develops during or after the acute stage because of more or less destruction of erythrocytes, with a consequent hemoglobinemia.[8] Wells suggests that the anemia of nephritis may be due to the retained metabolites, and the same may be true in insolation.

Another and perhaps important item in the pathologic physiology of the two conditions under discussion is the presence of an acidosis. Gordon, in making the statements regarding the leukocytosis and anemia, also mentions the reduced alkalinity of the blood in heat stroke. However, in reviewing literature on acidosis and heat stroke I have found no data concerning the degree of acidosis in heat stroke, although different authors have referred to the reduced alkalinity in this condition. A general acidosis is usual in nephritis and marked in uremia, demonstrable by measurement of the partial pressure of carbon dioxid in the alveolar air and the alkali tolerance test. This has also been confirmed by experiments during which animals received such renal poisons as cantharidin, arsenic, diphtheria toxin, potassium chromate and uranium nitrate; [9] the

* From the Pathological Laboratory of Rush Medical College.
* The work reported here was made possible by a grant from the Fenger Memorial Association.

1. McKenzie Pierce and LeCount E. R.: Heat Stroke with a Second Study of Cerebral Edema J. A. M. A. **71**: 260-263 (July 27) 1918.

2. Postmortem records of the Pathological Laboratory of Rush Medical College.

3. Vierordt, H. (Daten und Tabellen für Mediziner, Jena, 1906, Ed. 3, pp. 36, 40 and 44) gives the average weight of the spleen at 25 years as 165 gm., a ratio of 1:400 for the normal weight of 146 pounds (66.2 kg.) at this age.

4. Osler, William: Modern Medicine, Philadelphia, Lea & Febiger **1**: 437, 1907.

5. Nakahara, W.: The Source of the Lymphocytosis Induced by Heat, J. Exper. Med. **29**: 17-23 (Jan.) 1919.

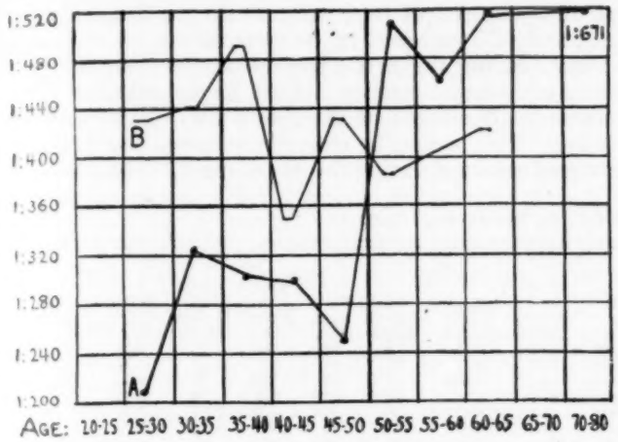
6. Gradwohl & Schuster: A Study of Thermic Fever, with Special Reference to the Blood and Urine Chemical Findings, Am. J. M. Sc. **154**: 407-414, 1917.

7. Wells, H. G.: Chemical Pathology, Ed. 3, Philadelphia, W. B. Saunders Company, 1918, p. 528.

8. Da Costa, J. C.: Clinical Haematology, Philadelphia, P. Blakiston's Son & Co., 1905, p. 437.

9. Goto, K.: Experimental Acute Nephritis, J. Exper. Med. **27**: 413 (March) 1918.

kidney lesions are accompanied by a diminution of the carbon dioxid combining power of the plasma and an increase in the blood urea and plasma chlorids. The acidosis thus produced may be relieved by the administration of sodium bicarbonate.[10] In other studies of experimental nephritis caused by diphtheria toxin, mention is made of the spleen as "large, soft and congested, especially in the acute stages," using mercuric chlorid, a "congestion of the splenic pulp;" and with cantharidin, a "congested spleen." [11]



Variation of ratio of spleen weight to body weight: *A*, spleen in uremia; *B*, normal spleen. From the postmortem records of the Pathological Laboratory of Rush Medical College.

By the term acidosis, as used here, is meant a condition in which the essential feature is the impoverishment of the body in available bases, whereby there results a decreased capacity of the tissues to get rid of the carbon dioxid and other acids formed in their metabolism. This reduction of bases may be and usually is the result of an excessive production of acids, and for the excretion of these the bases are eliminated in excess. But acidosis may also result from a deficient capacity of the kidneys to excrete acids, since the kidneys play an important rôle in regulating acidity. Clinically, an acidosis is manifested by hyperpnea, air hunger, coma, respiratory paralysis and death. However, it must be remembered that an acidosis does not exist as a clinical entity but, as already stated, accompanies many varied forms of disease.

Perhaps an important item in the pathologic physiology of an acidosis with reference to this discussion is that increased acidity of the blood lessens the ability of the blood to retain oxygen.[12] This is due to dissociation of oxyhemoglobin and may account in part for the extreme air hunger with acidosis. An increased H-ion concentration of the plasma increases the hemolytic action of hemolytic agents.[13] Fischer [14] also states that an acidosis produces a condition favorable for hemolysis. Berghausen [15] suggests that in cases of paroxysmal hemoglobinemia ascribed to cold, congestion and trauma, the excessive tissue acidity due to organic acids thus formed may play some part in the production of the attack.

Correlating now the splenic enlargement, the anemia and the acidosis in heat stroke and uremia, and a definite relation between acidosis and hemolysis, the question arises whether the acidosis is in a measure responsible for the anemia in these cases. If so, would an experimental acidosis produce an anemia and an enlarged spleen?

An experimental acidosis may readily be produced by the oral administration of acids,[16] or foods poor in alkalis, or the intravenous or the subcutaneous injection of acids.[17]

RESULTS OF EXPERIMENTS

Guinea-pigs were chosen for the experimental work because herbivorous animals are more susceptible to acid poisoning than the carnivorous. In the first experiment the animals were weighed, and then 0.1 normal hydrochloric acid injected into the subcutaneous tissues of the abdomen under strict aseptic conditions. The acid was given once daily in gradually increasing amounts from 1 to 5 c.c., and this dose varied according to the condition of the animal and the rate of the onset of the symptoms. All the animals sooner or later developed the same symptoms, namely, lessened activity, unsteadiness of motion, dulness, stupor, first excessively rapid, short and shallow respiration, then with increasing stupor and coma, very slow and deep forced gasps for breath, and finally death. Some of the animals died spontaneously, others were killed by a blow on the back of the head after the symptoms mentioned were pronounced. Some localized necrosis appeared at the sites of injection, but this never was marked or extensive. Examinations were made soon after death, the time varying from immediately to within two hours after death. No infections or intestinal parasites were noted. The postmortem appearance was quite constant in all cases. The skeletal muscles were somewhat pale and edematous; the lungs usually moist and hyper-

TABLE 2.—RESULTS OF FIRST EXPERIMENT

No.	Weight at Beginning, Gm.	Total 0.1 N. HCl, C.c.	Days of Experiment	Body Weight at Death, Gm.	Loss in Weight, Gm.	Weight of Spleen in Gm.	Weight of Spleen per Kg. Body Weight*
1	278	15	7	274	4	0.35	1.28
2	370	48	23	278	92	0.5	1.8
3	234	16	6	221	13	0.35	1.58
4	284	6	2	280	4	0.4	1.4
5	240	31	19	225	15	0.3	1.3
6	292	33	19	240	52	0.3	1.2
7	228	6	6	200	28	0.2	1.0
8	230	8.5	10	197	33	0.2	1.01
9	242	7	8	230	12	0.25	1.08
10	232	7	8	232	0	0.2	0.85
11	218	8.5	10	167	51	0.17	0.01
12	200	8.5	10	180	20	0.2	1.1
13	235	8.5	10	175	60	0.2	1.1
14	212	8.5	10	187	25	0.14	0.75
15	203	7	8	190	13	0.15	0.78
16	220	6	4	150	70	0.18	1.2
17	235	7	8	225	10	0.2	0.88
18	245	7	8	205	40	0.25	1.2
19	235	8.5	12	180	55	0.2	1.1
20	245	8.5	12	205	40	0.2	0.97
21	225	8.5	12	178	47	0.2	1.1
Aver.	243.4	..	..	210.4	33	0.244	1.13

Average of 16 normal guinea-pigs:	Gm.
Body weight	202.2
Spleen weight	0.178
Spleen weight per kilogram of body weight	0.678

* The figures in this column represent what the spleen would weigh if the body weight were 1,000 gm. provided the ratio is the same as with the actual weights; e. g. for Animal 1 the figure in the last column is obtained thus: 0.35 : 274 :: x : 1,000. Therefore x = 1.28.

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emic; the abdominal viscera grossly unchanged excepting occasional bright red hemorrhages beneath the capsule of the kidneys. The spleen was generally darker purple than normal, more pulpy and friable, and the malpighian corpuscles a little more easily seen. Occasionally numerous subcapsular hemorrhages, 1 mm. in diameter, were present. There was a slight increase in the weight of the spleen, although the increase in size was not apparent to the naked eye. As controls for the animals receiving acid in the first experiment, healthy guinea-pigs were kept under the same conditions except that they received no acid. Table 2 shows the results of the first experiment.

In a second experiment, guinea-pigs were again used; and although they were of slightly varying weights, they were of approximately the same age in order to obviate the factor of varying spleen weights with respect to age. Prior to the injection of hydrochloric acid, from 3 to 5 c.c. of blood was aspirated from the left ventricle of each of the animals under aseptic conditions, centrifuged, and the ability of the plasma to absorb carbon dioxid determined by the method of Van Slyke. The hemoglobin content of the blood was estimated by the formation of acid hematin and comparison with a standard using a Duboscq colorimeter. The standard for use with the colorimeter was prepared by estimating the oxygen capacity of the blood with the Van Slyke apparatus, and from this blood of known oxygen capacity an acid hematin stock solution was prepared from which a fresh standard was prepared every three days. Red blood cell counts were also made. Then the animals were given 0.1 normal hydrochloric acid as in the first experiment, and at the time of appearance of the acidosis symptoms, the ability of the plasma to combine with carbon dioxid, the hemoglobin estimation, and the red cell counts again made. The control animals were kept under the same conditions as regards feeding, handling, etc., except that they were given physiologic sodium chlorid solution in similar quantities and at the same time as those receiving acid. Soon after the second determination of the ability of the plasma to combine with carbon dioxid, hemoglobin, and red cell counts the animals were killed, postmorten examinations made, and the spleen weights noted as in the first experiment. Tables 3 and 4 contain the results from the guinea-pigs receiving the acid and those used as controls. There is an increase in the size of the spleen of 66.6 per cent. in the first experiment, and 42.7 per cent. in the second.

Since, during the first experiment, the body weight decreased, some question arises as to whether the increase in the weight of the spleen may not be simply relative. This would be true if the spleen weight had remained constant during the experiment. The average spleen weight at death compared to the average body weight before the acid was injected bears the ratio 1.0 gm. per kilogram. The average spleen weight per kilogram body weight of the control animals for this experiment, 0.678 gm., has been taken in these calculations as the average ratio between spleen and body weights of the pigs receiving acid at the beginning of the experiment. If the spleen weight had remained constant during the experiment, and there had been no decrease in body weight, the ratio would still be 0.678 gm. per kilogram. The increase of this ratio from 0.678 to 1.13 gm. per kilogram, it is believed, represents an increase of the weight of the spleen during the experiment, both relative and absolute. By similar assumptions in the second experiment, the average spleen weight at death as compared to the average body weight before the injections is 1.05 gm. per kilogram; in the control animals the ratio is 0.858 gm. per kilogram, again indicating a considerable increase in the spleen weight. In the second, also there is a decrease of 33.7 per cent. of the carbon dioxid combining power of the plasma, 19.9 per cent. decrease of hemoglobin, and 9.9 per cent. decrease of the color index of the blood. The animals exhibited a varying susceptibility to acid poisoning; and by the giving of

TABLE 3.—RESULTS WITH GUINEA-PIGS RECEIVING ACID

No.	Weight at Beginning	Plasma CO_2, per Cent.	Erythrocyte Count	Hemoglobin	Color Index	Days	C.c. of 0.1 N. HCl	Plasma CO_2, per Cent.	Erythrocyte Count	Hemoglobin	Color Index	Total Days	Total Acid, C.c.	Weight at Death, Gm.	Loss of Weight, Gm.	Spleen Weight, Gm.	Spleen Wt. per Kg. Body Weight, Gm.
1	282	73.0	6,250,000	72.8	0.59	9	18	44.6	5,720,000	59.3	0.51	9	18	260	22	0.23	0.88
2	295	49.1	6,150,000	60.53	0.49	13	33	33.8	5,460,000	51.7	0.47	17	48	287	8	0.36	1.25
3	250	49.1	6,070,000	70.7	0.498	13	33	31.9	5,470,000	54.1	0.493	17	48	230	26	0.26	1.13
4	273	67.3	6,190,000	67.3	0.57	13	33	33.8	5,020,000	56.3	0.55	17	48	255	18	0.65	2.54
5	307	49.1	6,150,000	65.7	0.53	13	33	30.9	5,410,000	53.2	0.48	12	33	300	7	0.32	1.06
6	268	82.4	5,890,000	60.1	0.558	13	33	50.0	5,130,000	34.0	0.331	17	48	257	11	0.26	1.01
7	262	50.4	6,710,000	74.06	0.551	13	33	28.1	5,960,000	60.4	0.506	17	48	247	15	0.25	1.01
8	298	57.0	5,780,000	61.7	0.533	13	33	45.3	5,840,000	59.7	0.511	13	38	290	8	0.21	0.72
9	280	63.6	6,710,000	74.06	0.551	13	33	50.0	5,370,000	60.4	0.514	13	38	258	22	0.15	0.58
10	273	65.4	6,120,000	64.3	0.525	13	33	41.8	5,630,000	56.5	0.501	13	38	257	16	0.26	1.01
Aver.	279.4	60.64	6,202,000	67.12	0.539	..	..	39.02	5,501,000	54.56	0.486	..	..	264.1	..	0.295	1.119

TABLE 4.—CONTROL ANIMALS

No.	Weight at Beginning	Plasma CO_2, per Cent.	Erythrocyte Count	Hemoglobin	Color Index	Days	C.c. of Normal NaCl	Plasma CO_2, per Cent.	Erythrocyte Count	Hemoglobin	Color Index	Total Days	Total NaCl, C.c.	Weight at Death, Gm.	Gain in Weight, Gm.	Spleen Weight, Gm.	Spleen Wt. per Kg. Body Weight, Gm.
1	178	54.1	6,170,000	68.2	0.552	13	33	51.6	6,190,000	70.3	0.567	17	48	185	7	0.10	0.54
2	320	59.1	6,190,000	69.7	0.563	13	33	57.4	6,130,000	66.3	0.500	17	48	350	30	0.26	0.74
3	300	51.0	6,450,000	60.5	0.469	13	33	45.8	6,190,000	59.5	0.480	17	48	325	25	0.10	0.307
4	305	47.1	6,070,000	60.9	0.501	13	33	45.8	5,900,000	62.3	0.528	17	48	320	15	0.24	0.75
5	315	57.0	5,500,000	69.7	0.633	13	33	54.5	5,760 000	72.8	0.632	17	48	345	30	0.32	0.92
6	212	50.4	6,000,000	68.5	0.570	13	33	57.4	6,140,000	64.3	0.523	17	48	235	23	0.27	1.15
7	248	56.0	6,130,000	68.2	0.556	13	33	57.1	6,200,000	69.1	0.557	17	48	268	20	0.23	0.866
8	252	54.8	6,210,000	67.3	0.542	13	33	53.1	6,250 000	68.1	0.544	17	48	280	28	0.18	0.642
9	295	49.4	6,180,000	64.1	0.518	13	33	49.1	6,150,000	63.0	0.512	17	48	318	23	0 28	0.88
10	287	48.5	6,170,000	67.8	0.549	13	33	50.3	6,000,000	65.2	0.543	17	48	305	18	0.34	1.11
Aver.	271.2	52.74	6,107,000	66.49	0.545	..	..	52.21	6,091,000	66.09	0.538	..	..	293.1	..	0.232	0.858

smaller amounts at first, and then by gradual increase in the dose, they apparently were able to withstand larger total quantities than with large initial doses.

CONCLUSIONS

1. These results indicate that:

(*a*) The subcutaneous injection into guinea-pigs of hydrochloric acid produces an acidosis demonstrable by a decreased ability of the plasma to combine with carbon dioxid as estimated by the Van Slyke method.

(*b*) The animals have a varying susceptibility to such poisoning with acid, and the organism can be made to adapt itself slightly to gradually increased doses of acid.

(*c*) An experimental acidosis can produce an anemia associated with an enlargement of the spleen.

2. They suggest that the enlarged spleen may be due either to an increase in its function as a hemoglobin-destroying organ as a result of the hemolysis, or as a result of its hyperfunction as a hematopoietic organ in combating the anemia accompanying an acidosis.

BRONCHIAL SPIROCHETOSIS *

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The presence of bronchial spirochetosis in the United States has been reported in only a few instances. It is our belief that the disease is more common and more widespread in this country than is generally recognized, and that if the nature of the infection and the possibility of encountering it were kept more constantly in mind, it would be more frequently observed.

Since 1906, when Castellani [1] first described it, the disease has been regarded as a disease of tropical countries; not until comparatively recently was its presence in the temperate zones recognized and reported.

The importance of recognizing the fact that bronchial spirochetosis exists in this country cannot be overestimated. Its marked resemblance in many cases to pulmonary tuberculosis, its mild course as compared to that disease, the ease with which it can usually be recognized, and its rapid response to proper treatment, make it necessary that we should be on the alert to detect it. The routine examination of sputum should include a search for spirochetes. Failing to find other possible factors, such as tubercle bacilli, ova or fungi, the spirochete should not be passed lightly over and regarded as a buccal or pharyngeal contamination, unless such sources can be definitely demonstrated.

The history of bronchial spirochetosis is worth a brief review. In 1906, Castellini reported the occurrence, in the island of Ceylon, of a form of bronchial infection caused by spirochetes. He examined two natives who had had recurring hemoptysis for some months and in whom the physical signs did not suggest pulmonary tuberculosis. The sputum was negative for tubercle bacilli, but contained large numbers of actively motile spirochetes. He termed the organism found in these patients *Spiroschaudinnia bronchialis*, and described it as an organism with marked polymorphism, varying in length from 5 to 25 microns and in breadth from 0.2 to 0.3 micron. As a rule, the ends are acuminate. Its movements are active, but cease shortly after leaving the body, and according to Fantham are succeeded by a granular stage from which new spirochetes are believed to be formed, and by means of which the infection is spread.

Branch,[2] in 1906, confirmed Castellani's findings in the West Indies, and shortly afterward Waters [3] reported several cases from India. Jackson, in 1908, reported the disease in the Philippines, and in 1909 Phalen and Kilbourne [4] also reported a case in the Philippine Islands, where in 1911 Chamberlain [5] described two further cases.

In 1910, Rothwell [6] described four cases in the United States of what he termed bronchial Vincent's angina, in which spirochetes were associated with fusiform bacilli in the sputum.

The disease has been reported in various parts of Africa by Chalmers and O'Farrell,[7] Taylor,[8] Harper [9] and others. Fantham,[10] in 1915, published a very complete work on *Spirochaeta bronchialis*. Lurie,[11] in 1915, reported a case of this disease in Serbia. Thompson,[12] in 1918, described several cases of pulmonary spirochetosis among patients who had been invalided from Saloniki on account of chronic malaria. In 1915, Galli-Valerio [13] observed several cases of the disease in Switzerland. It appears that very little attention was paid in Europe to the disease until it was found in France in 1916 by Violle,[14] who observed many cases of the disease at Toulon among native troops coming from the East, as well as among the European forces who had never been to the colonies. He states that the patients were usually sent to the hospital with a diagnosis of tuberculosis or suspected tuberculosis.

Chalmers and O'Farrell have succeeded in reproducing the disease in a monkey by intratracheal injection. In 1919, Farah [15] described the disease in Egypt occurring among the natives as well as among the foreigners in Alexandria. Nolf,[16] in 1920, reported eleven cases of spirillar bronchopneumonia in Belgium. Lewis,[17] in 1920, reported a case of bronchospirochetosis in a marine on duty in Cuba, who gave a history of hemoptysis about a year previously, at

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* From the U. S. Naval Hospital.

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16. Nolf, P.: Fetid Spirillar Bronchitis and Pulmonary Gangrene, Arch. Int. Med. **25**: 429 (April) 1920.

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which time he was on duty in the United States. Mason,[18] in 1920, reported the case of a boy, aged 16, who had been in America since 1 year of age, and who developed a pleural effusion which showed many actively motile spirochetes. Trocello,[19] in 1920, reported a case in Italy in which the patient gave a history of hemoptysis at long intervals for many years, and which had been diagnosed as pulmonary tuberculosis. Levy,[20] in 1921, reported two cases of bronchopulmonary spirochetosis in Texas. One of these patients had had hemoptysis at intervals for fourteen years. The second patient had symptoms of only a few days' standing.

Castellani[21] distinguished three types of the disease, the acute type, the subacute type and the chronic type. In the acute type the patient develops fever rarely exceeding 103 and coughs a great deal; the expectoration is usually scanty, and may contain traces of blood. In most cases the general condition of the patient is not much affected.

In the subacute type the attack may last from two to several weeks, with slight fever. The cough is frequent, and there may be expectoration of pink jelly-like mucus or true hemoptysis. The physical signs in the chest may be negative or indicate only a simple bronchitis. Occasionally there may be patches of slight dulness and evidence of consolidation. There may be a slight degree of anemia, but the white and differential counts are usually normal.

In the chronic type, which may follow an acute or subacute attack or several such attacks, the patient has a chronic cough and expectoration which may contain blood. Frequently there is no fever, or there may be irregular temperature. The physical examination usually shows only a few moist râles. Occasionally there may be signs of consolidation. The course of the disease may be prolonged with periods of improvement and even apparent cure.

Pneumonia may be a complication, as well as tuberculosis and bronchomycosis.

According to Castellani, a diagnosis of bronchial spirochetosis is based on the microscopic examination of the expectoration collected after cleansing the mouth and throat. Sputum may be examined fresh or may be stained by the Fontana method or the various Romanowsky methylene-azure blue stains.

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During the last year we have had three cases of bronchial spirochetosis and a fourth case in which the patient harbored the spirochetes, which were found following the course of a lobar pneumonia caused by the pneumococcus, and which persisted after recovery from the pneumonia. All of these patients were born in the United States, and while some of them had been outside the continental limits, it is safe to assume that their infection was contracted in this country.

REPORT OF CASES

CASE 1.—*History.*—A white man, aged 18, unmarried, complained of headache, pains in the back and shoulders, weakness, cough and expectoration of blood-streaked mucopurulent sputum. The family history was negative. The patient had had measles and whooping cough in childhood; pleurisy in 1914, of two weeks' duration, with good recovery, and mumps in 1918, with good recovery. The patient was a native of Illinois, and had never been outside the United States except for a period of a few days three years before, when he was in Canada. For three days prior to admission to the hospital, the patient had been having headaches, muscular pains, poor appetite, slight cough and expectoration of blood-streaked sputum, which increased in amount as the disease progressed. There was no nausea or vomiting, and there were no symptoms referable to the abdomen; there was slight sore throat, and the patient had a feeling of general malaise and weakness.

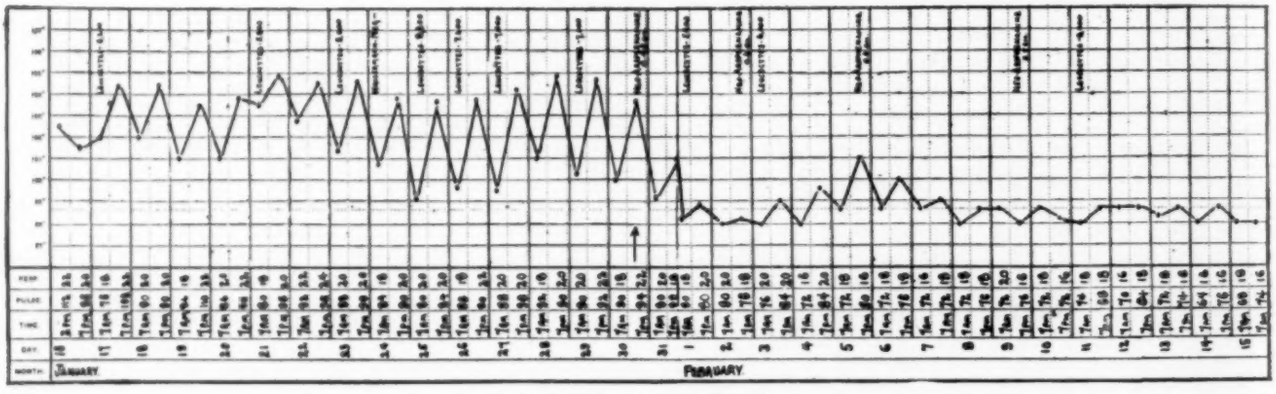

Fig. 1.—Clinical chart, Case 1.

Physical Examination.—On admission to the hospital, the temperature was 103, pulse 96, and respiration 20. The patient was fairly well nourished and muscular. The skin and the mucous membranes were somewhat pale; there were no petechiae. The lymphatic glands were not enlarged, and the spleen was not palpable. The abdomen was soft, and there were no tender areas or tumors. The liver extended one finger breadth below the costal margin. The pupils were equal and reacted to light and accommodation; the tongue was slightly coated. The tonsils were not hypertrophied, and there was slight congestion of the posterior pharynx and pillars, but no exudate and no evidence of membrane or ulcer. The teeth were in good condition; the heart was negative. Examination of the lungs disclosed only a few scattered râles at both bases; there was no impairment of resonance. The bones and extremities were negative; the reflexes, both superficial and deep, were normal. The eyegrounds were negative.

Laboratory Data.—A roentgenogram of the chest revealed a slight thickening of the bronchial tree on each side, the plate being otherwise negative. The sputum was negative for tubercle bacilli after repeated examinations during the course of the disease; throat cultures were negative for Klebs-Loeffler bacilli; blood smears were negative for malarial parasites, and blood cultures during the entire course of the disease were negative. The Noguchi reaction was negative. The stools were normal and negative for ova or parasites, and cultures were negative for typhoid and paratyphoid bacilli. Blood examination revealed a white count which varied from 5,000 to 8,800 during the course of the disease, with a slight relative

increase in the lymphocytic cells. The red cells, hemoglobin and color index were normal.

Clinical Course.—The patient continued to have fever with the temperature varying from 100 to 102 in the morning and from 103 to 104.8 in the evening. Chart 1 gives the temperature curve in this case and the effect on it of the treatment. Profuse night sweats occurred with great regularity, and the patient during the first three weeks of his illness lost 20 pounds. There was a slight cough and rather free expectoration of a thin, mucopurulent, blood-streaked sputum. The prostration during the course of the disease was not marked, and the patient stated that he felt fairly well, but weak. The case resembled so strongly in its clinical course a pulmonary tuberculosis that every effort was made to confirm such a diagnosis. The laboratory findings, roentgen-ray findings and physical examination, however, failed to demonstrate the existence of such an infection. During the course of the repeated sputum examinations it was noticed that while the sputum was negative for tubercle bacilli, there were constantly present a large number of spirochetes. The presence of these organisms was at first not regarded as significant, and it was only after repeated attempts to establish a definite diagnosis in this case that their presence was regarded seriously. Their constant presence in the sputum, after the teeth had been cleansed and the throat cleared with a mild antiseptic gargle, together with the absence of a lesion of the tonsils or pharynx which might account for their presence, appeared significant and strongly suggested the diagnosis of bronchial spirochetosis. It was decided to try the effect of an arsenical spirocheticide, and on the twentieth day 0.6 gm. of neo-arsphenamin was given intravenously, and on the twenty-first and twenty-second days the temperature again rose to 101 in the evening. On the twenty-fourth day, 0.5 gm. of neo-arsphenamin was given intravenously, following which injections of 0.9 gm. of neo-arsphenamin were given at intervals of one week, although the patient had shown no rise of temperature in the meantime, and was improving steadily. Following the injections of neo-arsphenamin the improvement in the patient was striking. The prompt termination of the fever, the rapid decrease in the number of spirochetes and their ultimate complete disappearance from the sputum, the prompt termination of the cough and the disappearance of the blood from the expectoration, which itself became almost negligible in quantity, leave little room for doubt regarding the efficacy of these injections. Two months following the onset of the disease, the patient had regained his loss of 20 pounds, had been up and about for several weeks and was able to resume his original duties. Before discharge from the hospital he was given an injection of 10 mg. of tuberculin, following which he showed no reaction.

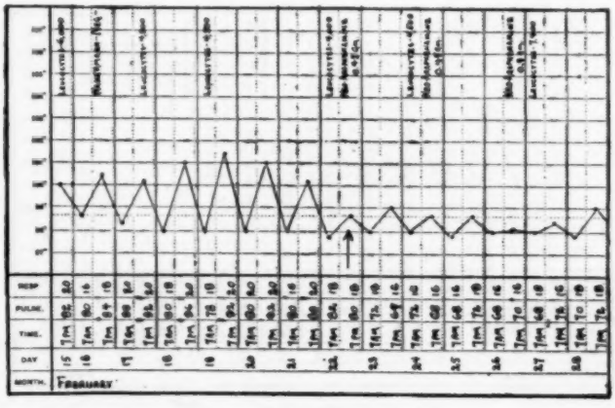

Fig. 2.—Clinical chart, Case 2.

The characteristics of the spirochetes found in this case and in the two following cases were so similar that they will be described later as being common to all of these cases.

CASE 2.—*History.*—A white man, aged 20, unmarried, complained of loss of appetite, weakness, general malaise, night sweats, slight cough, and expectoration of blood-streaked sputum. The family history was negative. The patient had had measles and whooping cough in childhood; influenza in December, 1918, followed by pneumonia, when he was in bed three weeks, and made a good recovery; and influenza of one week's duration in January, 1921, with good recovery. The patient was a native of Arizona and had never been outside of the United States except for a few days in Mexico four years before. For about four days preceding admission to the hospital, the patient had a feeling of weakness and lassitude, with poor appetite and cough. During this period he had night sweats and expectorated a rather thin, watery sputum which was streaked with blood. He had no sore throat and no symptoms referable to the abdomen.

Physical Examination.—On admission to the hospital, the temperature was 100, pulse 80, and respiration 18. The patient was well nourished and muscular, and the color of the skin and the mucous membranes was normal. There was no enlargement of the lymphatic glands, and the spleen was not palpable. The abdomen was soft, and there were no tender areas or tumors. Liver dulness extended to the costal margin. The pupils were equal, and reacted to light and accommodation. The tonsils and pharynx were negative; the teeth were in good condition; examination of the heart was negative. examination of the lungs disclosed a few moist râles, more marked at both bases. There was no impairment of resonance; the bones and extremities were negative; the reflexes, both superficial and deep, were normal; the eye grounds were negative.

Laboratory Data.—A roentgenogram of the chest revealed a thickening and increase in the density of the primary bronchi, more marked on the right side. The plate was negative for tuberculosis. The sputum was negative for tubercle bacilli after repeated examinations during the course of the disease. Throat cultures were negative for Klebs-Loeffler bacilli. Blood smears were negative for malarial parasites, and blood cultures taken during the course of the disease were all negative. The Noguchi reaction was negative. The stools were normal and negative for ova and parasites, and cultures were negative for typhoid and paratyphoid bacilli. Blood examinations revealed the white cells varying from 4,000 to 5,600 during the course of the disease, with a relative increase in the lymphocytic cells. The red cells, hemoglobin and color index were normal.

Clinical Course.—The patient continued to have a febrile course with temperature usually normal in the morning and rising to 100 or 101 each evening. Chart 2 gives the temperature curve in this case and also the effect of treatment. Night sweats were almost a daily occurrence and were profuse in character, leaving the patient feeling quite weak in the morning. During the febrile course of the disease, he lost 12 pounds. There was no marked prostration during the course of the disease, and he merely complained of muscular weakness and lassitude. There was a moderate cough and a rather free expectoration of thin, mucopurulent sputum which contained streaks of blood. The close resemblance of this case in its clinical aspects to acute pulmonary tuberculosis led to repeated examinations, roentgenograms and careful search of the sputum for evidence of this disease. The physical findings were practically negative, except for the moist râles which were found, particularly at both bases. The roentgen-ray findings were constantly negative for tuberculosis. The sputum, which was examined daily by both the ordinary methods and by the concentration methods, failed to show the presence of the tubercle bacillus. However, it was noted in the course of these examinations that while tubercle bacilli could not be found, there were almost constantly present a number of spirochetes which, while not being so profuse as in Case 1, still could be found without any difficulty in every slide examined. After the teeth and the pharynx had been cleansed to eliminate these sources, together with the absence of a lesion of the tonsils or pharynx which might account for their presence, it was considered that the constant presence of spirochetes in the sputum was significant, and it was determined to try the effects of a spirocheticide. On the eighth day 0.45 gm. of neo-arsphenamin was given intravenously, following which injection the temperature did not rise that evening. On the tenth day this injection was repeated, and the temperature remained normal. Following these injections

there was also a marked improvement in the patient's condition, the appetite improved, the night sweats stopped, and there was a general feeling of well being. On the twelfth day, 0.9 gm. of neo-arsphenamin was given intravenously, and following this two further injections of 0.9 gm. each were given at intervals of one week. The cough and expectoration became immediately lessened, and soon ceased entirely. The spirochetes rapidly decreased in number, and within a few days could not be demonstrated. Within a month after the onset of the disease the patient was back to his original weight, and the night sweats had entirely stopped, the appetite was good, and he felt entirely well. Before the patient was discharged from the hospital, he was given an injection of 10 mg. of tuberculin, following which he showed no reaction. The prompt termination of the febrile course, and the rapid and marked improvement in the clinical course following the administration of the arsphenamin, leave little room for doubt regarding the efficacy of this form of treatment.

CASE 3.—*History.*—A negro, aged 18, unmarried, whose family history was negative, complained of loss of appetite, weakness, cough, and expectoration of blood-streaked sputum. The patient had had chickenpox in childhood, and a severe case of influenza in 1918, of four weeks' duration, with good recovery. The patient was a native of Virginia, and had never been outside the United States. For one week prior to admission to the hospital the patient had a cough and had been expectorating freely, a rather thin, watery, blood-streaked sputum. Appetite was poor, and there was weakness and general malaise. There were no sore throat and no symptoms referable to the abdomen.

Physical Examination.—On admission to the hospital, the temperature was 100, pulse 80, and respiration 20. The patient was fairly well nourished and of normal development. The lymphatic glands were not enlarged, and the spleen was not palpable. The abdomen was soft, and there were no tender areas or abnormalities noted. The pupils were equal, and reacted to light and accommodation. The tonsils and pharynx were negative, and there was no exudate or evidence of membrane or ulcer. The teeth were in good condition. The heart was negative. Examination of the lungs revealed a few scattered, moist râles, more noticeable posteriorly and at both bases. There was no impairment of resonance. The bones and extremities were negative; the reflexes, both superficial and deep, were normal; the eye grounds were negative.

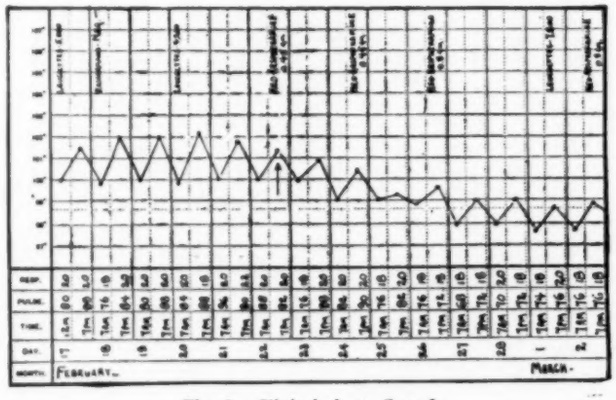

Fig. 3.—Clinical chart, Case 3.

Laboratory Data.—Roentgen-ray examination of the chest disclosed no lesion of the lung of such a degree or character as to be visible in a roentgenogram. The sputum was constantly negative for tubercle bacilli during the course of the disease. Throat cultures were negative for Klebs-Loeffler bacilli. Blood smears were negative for malarial parasites, and blood cultures during the course of the disease were all negative. The Noguchi reaction was negative. The stools were normal and negative for ova or parasites, and cultures were negative for typhoid and paratyphoid bacilli. The white cells during the course of the disease averaged 5,000 per cubic millimeter, and there was a relative increase in the lymphocytes. The red cells, hemoglobin and color index were normal.

Clinical Course.—The patient continued to have a febrile course with temperature varying from about 100 in the morning to approximately 102 each evening. Chart 3 gives the temperature curve and the effect of the treatment. Night sweats were not a feature of this case. The patient lost a total of 10 pounds during the acute course of the disease. There was a moderate cough and a profuse expectoration of a thin, watery sputum, which contained streaks of blood. There was no marked prostration during the course of the disease, and the patient complained only of a feeling of weakness and malaise. Repeated physical examinations disclosed only the findings of an acute bronchitis, and together with the negative roentgen-ray findings and the repeated negative examinations of sputum were against a diagnosis of pulmonary tuberculosis, although the disease in its clinical course strongly suggested such a diagnosis. It was noticed that the sputum in this case showed constantly the presence of large numbers of spirochetes, and after eliminating the teeth, tonsils and pharynx as the source of these organisms, it was considered that their presence bore some relation to the disease, and it was decided to give a spirocheticide. On the sixth day, 0.45 gm. of neo-arsphenamin was given intravenously without any noticeable effect on the temperature that day. On the following day, however, the temperature did not go as high as on any of the preceding days. On the eighth day this injection was repeated, and on the following day the temperature did not rise above 99.2. On the tenth day, 0.8 gm. of neo-arsphenamin was given intravenously, and on the following day the temperature remained normal. Two subsequent injections of 0.9 gm. of neo-arsphenamin were given at intervals of one week. Following these injections there was a marked improvement in the patient's condition. The appetite improved; the cough and expectoration became immediately lessened, and eventually ceased altogether. One month after the onset of the disease, the patient had returned to his original weight, the cough and expectoration had entirely ceased, and he felt entirely well. Before discharge to duty he was given an injection of 10 mg. of tuberculin, from which he showed a positive reaction. It was considered, however, that this reaction did not indicate any active tuberculous lesion, as both repeated physical examinations and roentgenograms of the chest were entirely negative.

COMMENT

The organisms of spirochetal nature encountered in the sputum of these patients more closely resembled *Spironema* than *Treponema* in that they were more refractive, more active in movement, and tended to change shape in motion. In stained preparations a delicate, threadlike spiral organism was noted, measuring from 6 to 28 microns in length and 0.3 micron in breadth. The ends were acuminate, and the undulations varied in number from three to fourteen. The length of the undulations was from 1 to 1.8 microns. No definite cellular structure or undulating membrane could be demonstrated, the cell body staining homogeneously; with some showing slight beading or granulations. No spores or flagella were demonstrable. It was gram negative, staining only faintly with safranin counterstain. The organism was nonacid fast, and stained only faintly with Loeffler's methylene blue. It stained best with Fontana, carbolfuchsin and polychrome methylene blue stains.

The spirochetes noted in these patients appeared to be of two rather distinct types. One type was quite thin, delicate and threadlike with more regular and numerous undulations; the other type appeared coarser, with fewer undulations and heavier staining.

Active motility of an undulatory character was noted in dark-field preparations of the fresh sputum, which ceased within ten minutes at room temperature (68 F.).

Cultures were unsuccessful by the ordinary aerobic, anaerobic and partial tension methods.

The absence of *Bacillus fusiformis,* usually associated with *Spirochaeta vincenti,* and the inability to obtain growth in cultures would tend to rule out a Vincent infection. Whether this is a distinct primary species of *Spironema* is questionable.

The continued presence of these organisms in the sputum during the course of the disease, and their rapid disappearance following the intravenous injection of a spirocheticide, along with the prompt clinical recovery, would indicate their significance as the etiologic factors in these cases. The accompanying bacterial flora remained unaffected by the treatment.

Guinea-pigs and white rats were inoculated with sputum from these patients, but succumbed to pyogenic infections; and all attempts to reproduce the disease in these animals were uniformly unsuccessful.

The diagnosis of bronchial spirochetosis is based on the clinical picture, which varies somewhat with the type of the disease but which in most cases is fairly distinctive, and the demonstration of the organism in the sputum, being careful that the specimen collected is really coughed up from the bronchi.

The disease must be differentiated from influenza, malaria, pulmonary tuberculosis, bronchomycosis and endemic hemoptysis.

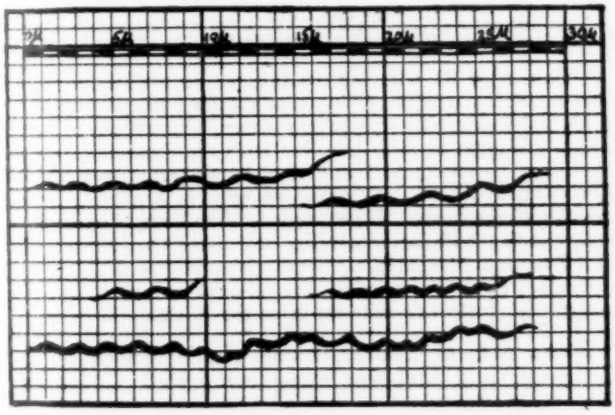

Fig. 4.—Bronchial Spironema from Sputum; average length, from 5.6 to 28 microns; average width, from 0.2 to 0.33 micron.

Various drugs have been used in the treatment of this condition, particularly the arsenical and iodin preparations. Castellani recommends liquor potassii arsenitis (Fowler's solution) and the cacodylates. Galli-Valerio recommends arsphenamin. We have found neo-arsphenamin effective; and on account of its ease of administration and low toxicity, it seems a desirable method of administering arsenicals.

Farah, in treating the disease in Egypt, used intramuscular injections of iodin with good results. He employed a 54 per cent. solution of iodin in poppy oil.

It would appear that attention should be more generally paid to the presence of bronchial spirochetosis in this country. In patients with a history of hemotysis is will relieve the patient's feelings to know that he is suffering, not from the dreaded tuberculosis of the lungs, but from a disease which is much less serious and generally terminates in recovery. A correct diagnosis is also extremely important from the standpoint of the naval and military service, as tuberculosis results in a permanent discharge from the service with a pension, while bronchial spirochetosis, as a rule, means only a few weeks' incapacity, after which the patient is able to resume his duties.

CONCLUSIONS

1. Bronchial spirochetosis exists in the United States, and is probably more widespread than is generally recognized.

2. The disease, in its clinical aspects, is very suggestive of pulmonary tuberculosis, but usually can be readily distinguished from this infection.

3. The routine examination of all sputum should include a search for spirochetes, and their presence should be regarded as significant, unless proved otherwise.

4. The disease appears to be capable of transmission from an infected to a noninfected individual, although the degree of contagiousness is probably slight.

5. An individual harboring the spirochetes in the sputum may present little or no evidence of the disease himself, and it appears that there exist carriers of *Spirochaeta bronchialis.*

6. The disease, as a rule, responds readily to treatment, and the arsenical preparations, particularly arsphenamin or neo-arsphenamin, are very efficacious.

SERUM DESENSITIZATION *

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With the more widespread employment of the serum of immunized animals for therapeutic purposes, the problem of desensitizing the patient who is hypersensitive to the serum comes up with increasing frequency. At present the most widely used serums are diphtheria antitoxin, tetanus antitoxin, antimeningococcus serum, antipneumococcus Type I serum, and antidysentery serum. In the present communication, we are not concerned with the specific immune bodies which these serums contain but with the problem of administering foreign serum in therapeutic doses to a patient who is hypersensitive to that serum. Since all of these serums are produced by the immunization of horses, the prevention of serum accidents and the administration of serum to hypersensitive patients are questions confined to that small group of patients who are hypersensitive to proteins of the horse, including both the proteins of the serum and the proteins of the hair and dandruff.

Shortly after Richet's [1] discovery of anaphylaxis, it was found by Otto and by Rosenau and Anderson in their pioneer studies that sensitized animals could be rendered refractory or antianaphylactic by the administration of a small dose of the same protein used to sensitize—a dose less than the minimal amount necessary to produce a fatal shock. This phenomenon was carefully investigated by Besredka and Steinhardt,[2] who gave to it the name of antianaphylaxis. The refractory condition thus produced is, however, only temporary. Its duration varies with the animal used

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* In this article, the desensitization has been used to designate the increased tolerance which, by proper procedures, may be produced in hypersensitive individuals. It is fully realized that the degree of desensitization falls short of what may readily be accomplished in experimental animals, and that in the present state of our knowledge, one cannot say whether the mechanism is the same or not. However, in view of the similarities between the human and experimental phenomena, and the almost universal custom of speaking of human sensitization and desensitization, this use of the terminology of experimental anaphylaxis seems justified for the present.

1. Richet, C.: Compt. rend. Soc. de biol. **4**: 837, 1902.

2. Besredka and Steinhardt: Ann. de l'Inst. Pasteur **21**: 117, 1907; **21**: 384, 1907.

and with the size of the sensitizing and desensitizing doses. Efforts have been made to determine the quantitative relations between the sensitizing dose, the length of the incubation period, the minimal anaphylactic dose and the minimal desensitizing dose. The results of different investigators are not in complete agreement, but the careful observations of Weil [3] are perhaps as trustworthy on these points as any that are available. Table 1, taken from Weil's paper, summarizes experiments carried out by quantitative methods on a large series of animals.

TABLE 1.—QUANTITATIVE RELATIONS OF SENSITIZING DOSE, INCUBATION PERIOD, MINIMAL ANAPHYLACTIC DOSE AND MINIMAL DESENSITIZATION DOSE IN GUINEA-PIGS

Sensitizing Dose	Incubation Period	Minimal Anaphylactic Dose	Minimal Desensitizing Dose
0.01 c.c.	16 days	0.02-0.5 c.c.	0.01 c.c.
2 c.c. × 3	10 days	0.4 c.c.	0.2 c.c.

From this table it is seen that with a small sensitizing dose the incubation period is longer, the minimal dose which will produce fatal shock is smaller, and the minimal desensitizing or antianaphylaxis dose is less than in animals sensitized with larger amounts. Although these results cannot be applied directly to the practical problem of desensitizing the patient who is hypersensitive to horse serum or horse dander, they nevertheless throw some light on the variability in the degree of human hypersensitiveness and on the inadequacy of any standard quantity of serum or any standard method for the desensitization of all these patients.

Our knowledge of how or when many of the hypersensitive individuals become sensitized is indeed scanty, but we do know beyond question that there are great variations in the degree of hypersensitiveness, and therefore great variations in the amounts to be used and the time required for desensitization.

TABLE 2.—CLASSIFICATION OF INDIVIDUALS HYPERSENSITIVE TO HORSE SERUM

1. Spontaneously hypersensitive.
   - A. "Horse" asthmatics.
     - (*a*) Cutaneous reactions positive to both horse dander proteins and horse serum (Case 1).
     - (*b*) Cutaneous reactions positive to horse dander proteins, but negative to horse serum (Case 2).
   - B. Individuals with no history of asthma or previous serum treatment, but with a cutaneous reaction positive to horse serum (Case 3).
2. Artificially sensitized.
   - A. Those to whom serum has been administered intraspinally (Case 4).
   - B. Those to whom serum has been administered intravenously or into the tissues.

In Table 2 I have attempted to classify the group of patients who in known or unknown ways have become hypersensitive to horse serum or horse dandruff proteins, and who therefore must be handled with caution when the question of serum treatment presents itself. In this classification, an effort has been made to arrange the group in the order of decreasing hypersensitiveness. Manifestly this arrangement will not hold for all cases, for there are certainly some patients who have never been treated with serum, and who have never had asthma or allergic rhinitis, but who have, nevertheless, a positive skin reaction to horse serum or horse dandruff or both. They, therefore, fall into the group of spontaneously hypersensitive patients, but are often hypersensitive to a less degree than some who have been artificially sensitized. There are, too, wide variations in the degree of sensitiveness in the group of artificially sensitized patients, that is, patients who have previously been treated with serum. Abundant clinical evidence indicates that many patients do not become hypersensitive after serum treatment.[4] This is especially true if only small amounts of serum have been used and after subcutaneous or intramuscular administration. In many others the hypersensitiveness is short lived, and when it does persist for years, it is often a low grade of hypersensitiveness. There is, however, unquestionably a small group who remain for one or two years, or perhaps longer, after a serum treatment, in a condition which demands great caution when serum has to be administered a second time. This applies particularly to those who have been given serum intravenously or intraspinally. Despite a few exceptions, the hypersensitiveness will be found to decrease from above downward as the several types are arranged in the foregoing classification.

It is with the patients in Group 1 that the utmost caution must be exercised. Some of the so-called "horse" asthmatics are so exquisitely hypersensitive that even minute amounts may prove fatal. One case from the literature will illustrate: [5]

> A man, aged 29, who for the last ten or twelve years had been subject to attacks of bronchial asthma when in proximity to horses, was anxious to have a desensitizing dose of horse serum, although he was familiar with the danger. He was taken to a hospital and 1 minim of horse serum was administered intravenously. Within two minutes a typical attack of asthma supervened. He was given 10 minims of epinephrin intravenously with definite relief for about ten minutes. In all, 50 minims of epinephrin were given in five doses, intravenously. Each gave relief for several minutes, but the patient died forty-five minutes after the injection of serum.

There are, of course, many similar cases in the literature,[6] and doubtless many unreported. Most, but not all, of the fatal serum accidents on record have occurred in this type of patient.

Some, however, come from Group 2. Accidents have occurred in patients who received their first serum injection intraspinally, and then, after an interval of nine days or more, were reinjected either intravenously or intraspinally.[7] There are also a few authentic cases with fatal outcome in which both first and second serum treatments were given intravenously, subcutaneously, or intramuscularly.[8] Even though the majority of these individuals who have previously had serum treatment do not remain hypersensitive, there is at any rate a potential danger in this type of patient which makes caution imperative in giving serum.

What, then, is to be done when one of these hypersensitive patients has diphtheria, tetanus, a Type I pneumococcus infection, meningococcus meningitis or bacillary dysentery? It is commonly stated that a desensitizing dose of 0.5 or 1 c.c. should be given subcutaneously before the whole quantity of serum is administered. In some cases this may suffice; but in

3. Weil, R.: J. M. Res. **29**: 233, 1914.

4. Nemmser, M.: Deutsch. med. Wchnschr. **39**: 740, 1913. Goodall, E. W.: Lancet **1**: 323 (March 2) 1918.

5. Boughton, T. H.: Anaphylactic Death in Asthmatics, J. A. M. A. **73**: 1912 (Dec. 27) 1919.

6. Gillette, H. F.: New York State M. J. **9**: 373, 1909. McKeen, S. F.: Boston M. & S. J. **164**: 503, 1911.

7. Netter, A.: Bull. et mém. Soc. méd. d. hôp. de Paris **33**: 401, 1912. Grysez and Dupuich: Ibid., p. 374.

8. Garel: Le rhume des foins, Paris, 1899. Dreyfuss, J.: München. med. Wchnschr. **59**: 198, 1912.

many cases such a procedure is entirely inadequate. Numerous reports in the literature testify to this. Besredka [9] introduced a method by which he believed desensitization could be accomplished in any patient. It consists of giving intravenously at intervals of from two to ten minutes increasing doses of serum, beginning with 1 c.c. of a 1:7 dilution. Despite the fact that Besredka's early estimate of the method was overenthusiastic, it forms the basis of the methods which, so far as is known, offer the best hope of desensitization. Undoubtedly there are some extremely hypersensitive "horse" asthmatics who cannot be desensitized by any method. Fortunately, however, such patients are rare.

REPORT OF CASES

The following case reports from the literature and our own experiences illustrate more or less successful attempts to increase the tolerance of hypersensitive individuals for horse serum. The diagnosis in each of these patients was lobar pneumonia, Type I, and the serum used was antipneumococcus Type I serum.

TABLE 3.—DESENSITIZATION IN CASE 1

Date	Time	Amount of Horse Serum C.c.	Method of Administration	Result
2/7	2:20 p. m.	0.25	Subcutaneously	Violent asthma
	3:30 p. m.	0.025	Subcutaneously	No reaction
	4:15 p. m.	0.066	Subcutaneously	No reaction
	4:45 p. m.	0.1	Subcutaneously	No reaction
	5:15 p. m.	0.25	Subcutaneously	No reaction
	5:30 p. m.	0.5	Subcutaneously	No reaction
	6:00 p. m.	1.0	Subcutaneously	Generalized urticaria
	8:00 p. m.	2.0	Subcutaneously	Urticaria fading
	8:30 p.m.	1.0	Intravenously	Nausea, vomiting, violent asthma
	10:00 p. m.	1.0	Intravenously	Nausea, vomiting, no asthma
	11:10 p. m.	2.0	Intravenously	No reaction
	12:00 m.	4.0	Intravenously	No reaction
2/8	12:45 a. m.	70.0 (diluted 1:2)	Intravenously (very slowly)	Nausea, vomiting, generalized itching
	8:00 p. m.	1.0	Intravenously	No reaction
	9:15 p. m.	65.0 (diluted 1:2)	Intravenously (very slowly)	Face suffused; itching of eyes; asthma

TABLE 4.—DESENSITIZATION IN CASE 2

Date	Amount of Horse Serum, C.c.	Method of Administration	Result
5/7	0.25	Subcutaneously	No reaction
	0.5	Subcutaneously	No reaction
15 minute intervals between injections	1.0	Subcutaneously	No reaction
	0.5	Intravenously	No reaction
	1.0	Intravenously	No reaction
	40.0 (dil. 1:2)	Intravenously (very slowly)	Restless; face flushed; asthma
8 hours later	40.0 (diluted 1:2)	Intravenously (very slowly)	Restless; face flushed; asthma
6½ hours later	60.0 (diluted 1:2)	Intravenously (very slowly)	Similar reaction, but milder
8½ hours later	65.0 (diluted 1:2)	Intravenously (very slowly)	Mild reaction
6 hours later	75.0 (diluted 1:2)	Intravenously (very slowly)	Mild reaction
6 hours later	70.0 (diluted 1:2)	Intravenously (very slowly)	Moderate reaction

CASE 1.—This case, reported by Alexander,[10] is, so far as we are aware, the only reported instance of the successful administration of large amounts of serum to a genuine "horse" asthmatic who at the outset reacted with violent symptoms to a small subcutaneous dose of serum. A man, aged 42, who had had asthma fifteen years, gave strongly positive cutaneous reactions to horse serum and horse hair proteins. The protocol of desensitization is given in Table 3.

It should be noted that with this patient, despite the fact that he was not desensitized to the point at which 65 or 70 c.c. of horse serum produces no symptoms, the tolerance was nevertheless markedly increased. One cannot give to this increase of tolerance an exact numerical value; but from a condition in which the patient reacted with violent symptoms to 0.25 c.c. subcutaneously, his reactivity was in the course of a few hours so altered that he tolerated without symptoms 4 c.c. given intravenously.

TABLE 5.—DESENSITIZATION IN CASE 3

Date	Time	Amount of Horse Serum C.c.	Method of Administration	Result
4/13	11:25 a. m.	1.0	Subcutaneously	No reaction
	12:05 p. m.	1.0	Intravenously	Respiratory difficulty; urticaria ++++
4/14	12:00 m.	1.0	Intravenously	No reaction
	1:30 a. m.	2.0	Intravenously	Urticaria ++++; swelling of lips and eyelids

TABLE 6.—DESENSITIZATION IN CASE 4

Date	Time	Amount of Horse Serum C.c.	Method of Administration	Result
3/21	10:30 p. m.	0.025	Subcutaneously	None
	11:00 p. m.	0.05	Subcutaneously	None
	11:30 p. m.	0.1	Subcutaneously	None
	12:00 m.	0.2	Subcutaneously	None
3/22	12:30 a. m.	0.4	Subcutaneously	Slight difficulty in breathing
	1:00 a. m.	0.8	Subcutaneously	Erythema, site of injection
	1:30 a. m.	1.0	Subcutaneously	None
	2:00 a. m.	0.1	Intravenously	None
	2:30 a. m.	0.2	Intravenously	None
	3:00 a. m.	0.4	Intravenously	None
	3:30 a. m.	1.0	Intravenously	Swelling, lower jaw
	4:00 a. m.	2.0	Intravenously	None
	4:30 a. m.	4.0	Intravenously	None
	5:00 a. m.	8.0	Intravenously	None
	5:45 a. m.	16.0	Intravenously	Erythema on dorsum of fingers, around left eye and on forehead

CASE 2 (also from Alexander's report).—A man, aged 37, had had allergic rhinitis from horses until ten years prior to admission, at which time he gave up driving behind horses. Cutaneous tests were negative to horse serum, and strongly positive to horse hair protein.

There is no evidence that this patient's hypersensitiveness to horse serum was very marked, although to horse dandruff it may have been of high degree. At no time were there intense reactions to the serum; but it is significant that the later reactions were less severe than earlier ones, even though larger amounts were given.

CASE 3.—A man, aged 54, admitted to the Presbyterian Hospital, April 13, 1917, gave no history of asthma, hay-fever or urticaria. No serum had been given previously. Intracutaneous tests with horse serum were positive.

This patient represents the group of those spontaneously hypersensitive to horse serum, but who have never had symptoms referable to this hypersensitiveness or a previous serum treatment. Although the desensitization of this patient was not carried far, his tolerance was definitely increased. The second injection, consisting of 1 c.c. intravenously, caused marked symptoms, whereas the same dose twelve hours later caused no symptoms.

CASE 4.—A man, aged 22, admitted to Presbyterian Hospital, March 21, 1920, gave no history of asthma or allergic

9. Besredka, A.: Ann. de l'Inst. Pasteur **24**: 879, 1910; Anaphylaxie et antianaphylaxie, Paris, Masson et Cie, 1917.
10. Alexander, H. L.: Asthma Complicating the Serum Treatment of Pneumonia, Arch. Int. Med. **20**: 636 (Oct.) 1917.

rhinitis. Diphtheric antitoxin had been administered seven years previously, and antimeningococcus serum two years previously. About two weeks after the antimeningococcus serum was given, he developed urticaria over the entire body, and his eyes swelled. Intracutaneous tests, on admission, were positive for horse serum.

This patient represents the group of those artificially sensitized by a previous intraspinal administration of serum. Clearly he was not highly sensitized. It is interesting to note that an intravenous dose of 8 c.c., following a series of smaller but increasing doses, produced no symptoms, though reactions had followed some of the smaller doses.

COMMENT

Despite the many obscurities with which the problems of human sensitization and desensitization are beset, experience has demonstrated beyond question that, before serum is administered, information regarding the presence or absence of hypersensitiveness should be obtained. One should find out whether the patient has had asthma or allergic rhinitis from horses, or whether he has previously been treated with serum, and if so, by what route the serum was administered. An intracutaneous test should be made with horse serum in 1:10 dilution, injecting 0.1 c.c. or less—preferably 0.02 c.c. A control test with physiologic sodium chlorid solution or, better, with a 1:10 dilution of rabbit or sheep serum, should be made at the same time. One should wait half an hour before deciding whether the reaction is positive or negative. The interpretation of the mild type of positive reaction is not always easy; but if there is a definite enlargement of the small elevation caused by injecting the serum into the skin, and if this injection wheal is surrounded by a zone of erythema, the test is positive, provided the control test has not behaved in a similar way. The size of the wheal and its surrounding zone of erythema give a rough index of the degree of hypersensitiveness. A large wheal and a wide zone of erythema, and especially a wheal which has projections like pseudopods extending away from it, indicate greater hypersensitiveness than a small wheal without pseudopods and a narrow zone of erythema. There are, however, a few patients in whom the skin test fails to reveal a state of hypersensitiveness; at least we have observed one patient with a very definite history of allergic rhinitis from horses whose skin test with the dandruff protein was negative, but in whom symptoms of rhinitis could be readily produced by instilling a drop of an extract of horse dandruff protein into the nostrils.

If the patient has had asthma and gives a positive skin test, great caution is necessary. The first desensitizing dose should be given subcutaneously, beginning with a dose not larger than 0.025 c.c. The dose should be doubled every half hour until 1 c.c. is given. Then 0.1 c.c. is given intravenously. After twenty minutes the dose is doubled. In case the therapeutic serum is to be given intravenously, the intravenous injections are continued, the dose being doubled every twenty minutes until 25 c.c. has been given without reaction. Four hours later, 50 c.c. may be given, and after eight hours the treatment may be continued in the usual manner. In case a reaction occurs, one should wait the usual interval, and then the last dose that gave no reaction or only a mild one is repeated. There is no evidence suggesting a cumulative action. The first portion of the serum should always be given very slowly and careful watch kept for respiratory embarrassment, cyanosis, skin eruptions, edema and symptoms of collapse.

In case the therapeutic serum is to be administered intraspinally, the subcutaneous doses should be carried out in the same way and four or five of the intravenous doses given, when, if there has been no reaction, the intraspinal route should be tried very cautiously. It should be realized, however, that in the exquisitely hypersensitive patients with bronchial asthma, serum therapy may be impossible.

As for the patient who has previously been treated with serum, and is demonstrably hypersensitive by the skin reaction, the same procedure should be followed, even though such patients probably never attain the same degree of hypersensitiveness as the asthmatic individuals with natural sensitization. It is probably quite safe with some of these less sensitive patients to shorten the desensitization program in case the first few injections produce no reaction. This may be done by increasing the doses a little more rapidly than by doubling the preceding amount. The first intravenous dose should, however, never be more than one tenth of the largest dose tolerated subcutaneously. It will be found that only very rarely is it impossible to desensitize a patient whose sensitization dates from a previous treatment. Finally, when attempting desensitization, one should never inject serum without having epinephrin at hand.

VALUE OF THE ALIMENTARY TEST IN THE DIAGNOSIS OF MILD HYPERTHYROIDISM

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Several years ago, Denis, Aub, and Minot[1] studied the blood sugar of seventeen cases of hyperthyroidism, before and after the ingestion of 100 gm. of glucose and 50 gm. of bread. They found that, following the administration of this carbohydrate meal, a hyperglycemia occurred in all these cases.

BLOOD SUGAR PERCENTAGE IN THREE NORMAL PERSONS AND IN TEN CASES OF MILD HYPERTHYROIDISM *

	Time									
		After, Hours								
Condition	Before	½	1	1½	2	2½	3	4	Basal Metabolism, per Cent.	Goetsch Test
Normal 1.....	0.089	0.108	0.127	0.125	0.118	.....	0.086	.....	+ 2	—
Normal 2.....	0.077	0.101	0.132	0.108	0.094	.....	0.083	.....	1	—
Normal 3.....	0.093	0.116	0.133	0.126	0.100	.....	0.095	.....	+ 1	—
Hyperthyroid 1.	0.084	0.109	0.148	0.193	0.198	0.183	0.151	0.113	+16	+
Hyperthyroid 2.	0.103	0.133	0.143	0.160	0.179	0.186	0.172	0.122	+12	+
Hyperthyroid 3.	0.099	0.145	0.164	0.222	0.215	0.179	0.173	0.118	+17	+
Hyperthyroid 4.	0.097	0.135	0.189	0.175	0.188	0.174	0.160	0.118	+24	+
Hyperthyroid 5.	0.082	0.100	0.115	0.136	0.149	0.160	0.156	0.120	+12	+
Hyperthyroid 6.	0.088	0.118	0.152	0.168	0.179	0.185	0.177	0.131	+23	+
Hyperthyroid 7.	0.108	0.157	0.187	0.208	0.225	0.201	0.185	0.136	+15	+
Hyperthyroid 8.	0.079	0.111	0.127	0.161	0.152	0.136	0.123	0.096	+21	+
Hyperthyroid 9.	0.091	0.128	0.162	0.189	0.198	0.204	0.195	0.149	+18	+
Hyperthyroid 10	0.106	0.143	0.163	0.165	0.167	0.161	0.150	0.111	+13	+

* Before and after ingestion of 100 gm. glucose, compared with basal metabolic determinations and epinephrin test of Goetsch.

Lately it has seemed to be of interest to determine what value, if any, is attached to the alimentary hyperglycemia test in the diagnosis of mild hyperthyroidism—particularly in the so-called borderline cases in which the clinical signs and symptoms are not sufficient to warrant one in making a positive diagnosis, and in

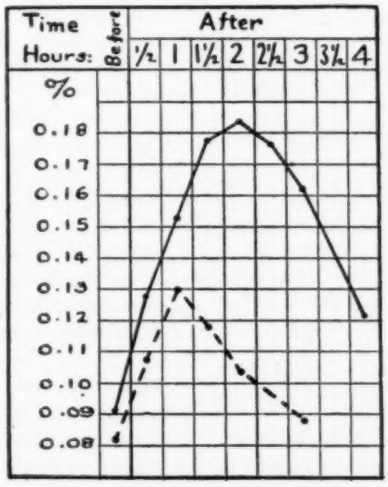
1. Denis, W.; Aub, J. C., and Minot, A. S.: Blood Sugar in Hyperthyroidism, Arch. Int. Med. **20**: 964 (Dec.) 1917.

which it is necessary to resort to laboratory tests in order to decide what the condition is.

With this object in view, I have selected ten cases in which a positive diagnosis of hyperthyroidism could not be made until the basal metabolic rate was known. These cases, therefore, very properly belong to the borderline group, as far as the signs and symptoms are concerned, and to the group known as mild hyperthyroidism after the metabolic rate is known. Three perfectly normal persons were used as controls for the experiment. The different tests and determinations in both normal and hyperthyroid cases were made under the same conditions, etc.

The sugar estimations were made according to the method recently described by Myers.[2] The basal metabolic rate was determined with the Jones metabolimeter, according to the method described by Jones.[3] The epinephrin test of Goetsch[4] was made in all thirteen cases. The blood sugar estimation before the ingestion of glucose was made after an over-night fast of fourteen or fifteen hours.

In the accompanying table are given the results of these three tests. One notices that all of the hyperthyroid cases react positively to the Goetsch test, and that the average metabolic rate of the thyrotoxic cases is 17 per cent. above normal. The average blood sugar, before the administration of glucose, was 0.82 per cent. for the normal persons and 0.91 per cent. for the hyperthyroid patients. One notices also that the normal persons show the highest blood sugar content at the end of one hour after the ingestion of the glucose, while, in the hyperthyroid cases, the maximum blood sugar values occur at the end of from one and a half to two and a half hours after the ingestion of the glucose. The maximum blood sugar in the thyrotoxic cases is notably higher than that of the normal cases. In the normal cases, the blood sugar values are well within normal limits at the end of two hours, and even more so at the end of three hours, while the blood sugar content in the mild thyrotoxic cases declined only to the upper limit of normal values at the end of four hours after the administration of glucose. In the accompanying chart are plotted curves representing the average results obtained in both the normal and the hyperthyroid cases.



Curves representing the average results, after the ingestion of 100 gm. of glucose, in three normal persons and in ten patients with hyperthyroidism of low degree. Solid line, hyperthyroid cases; broken line, normal cases.

One seems to be justified in concluding, from a study of the results obtained in this series of cases, that the alimentary hyperglycemia test is of distinct value in the diagnosis of mild hyperthyroidism. In persons whose symptoms and physical findings are suggestive, but insufficient to warrant the making of a positive diagnosis of hyperthyroidism, the obtaining of results similar to those recorded in the ten cases here reported may be considered as valuable corroborative evidence of the presence of thyrotoxicosis. The test, however, is not pathognomonic.

Candler Building.

2. Myers, V. C.: Chemical Changes in the Blood in Disease, J. Lab. & Clin. Med. **5**: 640 (July) 1920.
3. Jones, H. M.: A Simple Device for Measuring Rate of Metabolism, Arch. Int. Med. **27**: 48 (Jan.) 1921.
4. Goetsch, E.: New York State J. M. **18**: 259 (July) 1918.

EXPERIENCES WITH THE LYON TEST (MAGNESIUM SULPHATE LAVAGE OF THE DUODENUM)

FOR THE DETERMINATION OF GALLBLADDER DISEASE *

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About four years ago, Meltzer[1] published an article in which he discussed the basis of our conceptions regarding the innervation of the gallbladder, and its contractile mechanism. In this article he dilated on the function of the sphincter at the papilla of Vater, and the interrelation between the contracting gallbladder, and the sphincteric action at the papilla.

Applying the facts that had been made known to us by experimental physiologists, he invoked the "law of contrary innervation" to explain the physiologic coaptation of contracting musculature and relaxing sphincter. Meltzer took a step forward and suggested that occasional types of jaundice, such as catarrhal or emotional jaundice, could be caused by disturbances in the carrying out of these coordinated nervous reflexes; he suggested an abnormal rigidity or passivity of the sphincter as the possible cause. He made the practical therapeutic suggestion that a concentrated solution of a magnesium salt introduced into the duodenum through a duodenal tube might, by causing a relaxation of a badly functioning sphincter at the papilla, tend to relieve the jaundice.

Lyon[2] of Philadelphia adopted the suggestion of Meltzer. He carried the argument one step farther. If magnesium sulphate relaxes the sphincter, then by the law of contrary innervation it causes simultaneous contraction of the gallbladder, and the emptying of its contents. By collecting the fluid in the duodenum after the saline lavage, he proposed a diagnostic test for disease of the gallbladder, based on a study of the amount, character, cytology and bacteriology of these contents under normal and abnormal conditions. In a large series of cases, Lyon has collected duodenal contents before and after magnesium lavage. The diagnosis of cholecystitis or cholangeitis is based on the presence of a large amount of cloudy, discolored, heavy, mucoid bile containing desquamated epithelium, pus cells and bacteria. He has applied the therapeutic element in the suggestion of Meltzer, using this method for the relief of catarrhal jaundice, chronic infections of the biliary tract, etc., and claiming considerable success as a result.

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1. Meltzer, S. J.: Am. J. M. Sc. **153**: 469 (April) 1917.
2. Lyon, B. B. V.: Diagnosis and Treatment of Diseases of the Gallbladder and Biliary Ducts, J. A. M. A. **73**: 980 (Sept. 27) 1919.

The methods, technic and the reasoning of Lyon are elaborated in a series of articles by him. The lack of space at this moment will not permit even a summary. Nor is it really necessary, since the work has aroused so much interest that it is fair to say that few practical workers in medicine or surgery remain unfamiliar with the basic conditions and principles of the test. No less a name than Meltzer's having been attached to the original therapeutic suggestion, our attention was aroused by the plausibility and rationale of the test. We, therefore, have attempted in a series of fifty or sixty clinical cases of gallbladder disease to gather data and, by examining these data with an open, though critical mind, to formulate a conclusion on the success of the method or to discover its possibilities and its limitations.

There is probably no other problem in borderline medicine and surgery that can vie with the diagnosis of chronic inflammatory gallbladder disease for interest and importance. The field is unlimited, and a successful method of diagnosing gallstones and chronic cholecystitis would be very welcome. The fruition of the test and its therapeutic application depend on the successful demonstration of all these premises:

1. Demonstration of the presence of a functioning sphincter at the mouth of the common bile duct.
2. Demonstration that rhythm and contractions of the gallbladder walls and simultaneous relaxation of the sphincter action at the papilla are both controlled by contrary acting systems of innervation.
3. Evidence to show that magnesium salts cause relaxation of the smooth muscle of this sphincter when applied to the duodenal mucosa, and thus reflexly cause contractions and emptying of the gallbladder.
4. Evidence that the fluid obtained is really gallbladder fluid, and that changes in color, consistency and amount indicate disease.
5. Evidence that cytologic, chemical and bacteriologic examination of this fluid is both possible and feasible and leads to dependable conclusions regarding gallbladder pathology.

The steps in the theorem of Lyon would, therefore, be as follows: The magnesium sulphate solution, introduced through the duodenal tube in the fasting state, relaxes the sphincter at the mouth of the common bile duct. A flow of bile, common duct bile, or "A" bile, as Lyon calls it, follows. Immediately thereafter, the gallbladder contracts as a result of the application of the "law of contrary innervation," and the gallbladder, or "B" bile, appears in the duodenum and is aspirated or siphoned off. There follows now in order "C" bile, or bile from the hepatic ducts, and finally "D," or pure liver bile. On the collection of these fluids and their examination, Lyon bases his conclusions regarding the character of these specimens, their normality or abnormality. On the amount and character of the "B" bile are based his assumptions regarding the size and status of the gallbladder. Similarly he deduces the facts, from observations on the "C" and "D" bile, regarding the presence of a cholangeitis or of an intrahepatic suppuration.

PHYSIOLOGIC BASES

Let us discuss in more detail the physiologic basis for each step in this reasoning. We shall then be in a position to judge better the actual results when we apply the test at the bedside.

1. *Presence or Existence of a Papillary Sphincter.*—Our real knowledge regarding the existence of such muscular mechanism is based primarily on the observations of Oddi,[3] an Italian physiologist and surgeon, who described an individual set of muscular fibers surrounding the terminal portion of the common bile and pancreatic ducts. While earlier anatomists had indicated the identity of such a mechanism, the maceration experiments of Oddi on the terminal ducts and the papilla of animals demonstrated a set of circular muscle fibers, surrounding the ducts, particularly the common bile duct. These fibers had their origin in the circular fibers proper of the duct. The muscular bundles increased in thickness and length as the duct entered and traversed the wall of the intestine; they threw out lateral fibers which commingled with the longitudinal and circular fibers of the intestinal wall, forming points of support for the duct in its course. Oddi declared the individual identity of such a sphincter bundle apart and separate from the circular fiber of the inner muscular coat of the duodenal wall.

In a painstaking research, Hendricksen[4] has confirmed in detail the findings of Oddi for such animals as the dog, cat, rabbit and guinea-pig: and, extending these observations to man, he was clearly able to demonstrate, by maceration specimens and microscopic sections, the existence of a corresponding sphincter in the human being. We have been able, without difficulty, to demonstrate microscopically in sections, both in man and in the dog, the existence of circular bands of smooth muscle fibers surrounding the common bile duct in its course through the intestinal wall. These transversely arranged bundles are continuations of the scanty musculature of the gallbladder and first and second portions of the common duct. In the third portion they are thicker and more numerous; yet at no point do they form a compact circular bundle or a substantial sphincter, such as is our conception, for example, of the sphincter of the pylorus or of the anal ring. The fibers of the sphincter of Oddi are scanty, widely separated and diffused, and are at no time continuous. Nor are they collected in a band at any one point, but are scattered evenly throughout the intramural course of the duct. A real anatomic sphincter, apart and separate from the inner circular coat of the duodenal wall, can hardly be said to exist.

Physiologically, however, a sphincteric action at the papilla of Vater is demonstrable. In animals, Mann[5] was able to show a resistance at the papilla equivalent to a pressure of a column of water of 100 mm. or more in height from within the bile duct. Herring and Simpson,[6] in series of animals including monkeys, demonstrated resistance at the sphincter, due to muscular tonus equivalent to a column of water from 200 to 300 mm. in height.

In some experiments on dogs which we performed with Dr. L. Auster in the Laboratory of Physiology at the Cornell University Medical College we laid open the duodenum and exposed the opening of the common bile duct. We noted that during digestion in the dog the flow of bile from the papilla was slow but practically continuous and consisted of bile from the liver. By drawing the finger even gently across the papilla, or by application of faradic stimulation or chemical irritants, it was seen that the sphincter promptly closed the duct. An interval of between 10 and 30 seconds elapsed during which the papilla was erected like a mammary nip-

3. Oddi: Arch. ital de biol. **8**: 317, 1887.
4. Hendricksen: Bull. Johns Hopkins Hosp. **60**: 221, 1898.
5. Mann: New Orleans M. & S. J. **71**: 80 (Aug.) 1918.
6. Herring and Simpson: Proc. Roy. Soc. London 1907 B **79**: 517, 1907.

ple. Then a relaxation took place, and the flow of bile was reestablished. Not only the papilla but also the surrounding segment of duodenum responded to the stimulus. If the stimulus was strong enough, the whole segment became tonically contracted; if weaker, only the papilla and adjacent musculature. Thus we were able to demonstrate a definite sphincteric action, though not actually a certain anatomic sphincter.

2. *Nervous Control of Contractile Tissues of Gallbladder and Papilla.*—It is supposed that the "law of contrary innervation" holds good for the excretory part of the biliary system, as it does elsewhere in the body. This law, interpreted in terms of gallbladder and sphincter, would call for a double innervation, splanchnic and parasympathetic, to both the gallbladder and the papillary muscle. Thus, the same stimulus that traversed the vagus system to cause contraction of the gallbladder would simultaneously relax the sphincter; or, traveling through the splanchnic system, would contract the sphincter and relax the gallbladder. Physiologists are not in accord in their results experimentally produced on animals. Thus, Doyon,[7] on stimulation of the peripheral end of the splanchnics, found contraction of the gallbladder and bile ducts; on stimulation of the central end of the splanchnics, he noted relaxation of the sphincter. Doyon states that he never saw these two effects produced simultaneously, but presumes that they do occur.

Bainbridge and Dale,[8] covering the same ground more than eleven years later, came to diametrically opposite conclusions. They said that "the invariable result of faradizing the splanchnic nerve was relaxation of the gallbladder." Stimulation of the cut end of the vagus in the thorax gave rise to contraction of the gallbladder. By means of a balloon in the gallbladder, rhythm and tonus were demonstrated by all the foregoing authors. Contractions of the gallbladder were evidenced by rise of manometric readings in an instrument connected with the balloon. Such contractions or rises in pressure were easily produced by rises in the general blood pressure, contractions of the diaphragm and liver, nerve stimulations, etc. However, relaxation of the papilla was never seen, though contraction and closure of the papilla were demonstrated as the result of vagus stimulation. A clearcut laboratory demonstration of the law of contrary innervation as applied in this field remains to be desired. It is more than likely, however, that some such regulatory apparatus does exist, similar to that in the intestinal tract, ureter, esophagus, etc.

In the experiments performed with Dr. Auster, we injected into the bladder cavity of dogs narcotized with chlorbutanol, a small quantity of a solution of methylene blue in physiologic sodium chlorid solution. This we did to differentiate gallbladder bile from the flow of liver bile. The duodenum was then opened and the papilla exposed for observation. It was noted that though the flow of bile is almost continuous after a meal, this bile consists entirely of liver bile, the blue discolored gallbladder bile not appearing at all except when manually expressed. Cholagogues and solutions of salines and peptones had a tendency to encourage this flow of liver bile; but we found no agent, applied in the duodenum, that caused the expulsion of the gallbladder contents. Strong faradic stimulation of the peripheral end of the right vagus caused general abdominal contractions of intestines, diaphragm, stomach, etc. With these contractions we noted the expulsion of the blue discolored gallbladder bile, though no evidence of actual muscular contractions of the gallbladder occurred. We are also led to believe, from our observations, that the gallbladder is a rather inactive organ, which takes little part in the physiologic production, storage or expulsion of bile.

Similarly, the sphincter, while capable of contractility and closure under mechanical or faradic stimulations, acted normally very little as a sphincter. The flow of bile was continuous, not interrupted or rhythmic, and no functional use of the sphincteric muscle was observed.

3. *Relaxation of Smooth Muscle of Sphincter When Magnesium Salts Are Applied to Duodenal Mucosa, and Reflex Contraction and Emptying of Gallbladder.*—The observations of Meltzer on the physiologic and pharmacologic action of magnesium salts are fundamental. He clearly demonstrated that magnesium solutions applied to exposed nerve trunks cause complete blocking or anesthetization peripheral to the point of application. Meltzer failed to see the intestinal peristalsis caused by the injection of barium salts, ergot, physostigmin (eserin) or the postmortem intestinal movements, when magnesium salts had previously been injected. We are familiar with the clinical intraspinal application of magnesium salts for the relief of the tonic spasms of tetanus, etc. Even when it was given by mouth to animals, Meltzer failed to see any acceleration of peristalsis, but claimed that he observed a depression of the intestinal movements.

It was natural, therefore, for Meltzer to think of applying the magnesium ion to the duodenal mucosa to relax, locally, the sphincter action. According to his conception of the double rôle of the innervation of the biliary tract, such a relaxation of the sphincter should be accompanied by a contraction of the gallbladder. To refer again to the experiments of Auster and myself on dogs, in which the gallbladder contents were stained blue to identify them, we applied to the mucosa of the fasting dogs' duodenum a concentrated solution of magnesium sulphate. (In the fasting state practically no bile of any kind passes out of the papilla; the gallbladder is moderately full.) No amount of magnesium sulphate caused any expulsion of the gallbladder contents. A slight flow of light golden yellow bile, apparently liver bile, followed, but no contractions of the gallbladder, and no blue discolored bile appeared. This experiment was repeated on eight dogs with the same negative results. McWhorter [9] demonstrated a lowering of pressure in the common bile duct of dogs of from 50 to 100 mm. after magnesium sulphate had been applied to the ampulla; no result was seen after peptone solution.

4. *That Fluid Obtained at Bedside by Magnesium Sulphate Lavage of Duodenum Is Gallbladder Fluid, and that Changes in Color, Consistency and Amount Indicate Gallbladder Disease.*—Let us lay aside for the time being all other considerations and try to draw independent conclusions from the clinical application of the suggested test. We have carried out the test in seventy instances; in a few of the cases the test was repeated a second time or a third time for confirmation, in one case the test being repeated four times. These were all cases of gallbladder or bile duct disease or related conditions, such as catarrhal jaundice (three cases),

7. Doyon: Arch. de physiol. norm. et path. **6**, 1894.
8. Bainbridge and Dale: J. Physiol. **33**: 138, 1905.
9. McWhorter, G. L.: Surg., Gynec. & Obst. **32**: 124 (Feb.) 1921.

syphilis of the liver, neoplasm of the common bile duct or papilla of Vater, etc. They were mostly cases in which definite pathologic conditions were present or presumably present; a few negative cases were interspersed. Of this series of seventy cases, we were fortunate enough to be able to follow twenty of them to the operating table, and there to ascertain the correctness or error of our conclusions based on the readings of the test. It is the latter small group of twenty cases which are the most valuable and instructve; they furnish the criteria for an honest judgment. The test in most instances was performed on the morning or on the day just previous to the operation.

The technic of Lyon was simplified and adapted to hospital use. The tube (Einhorn duodenal tube) was passed either the night before or in the fasting state in the morning. When bile of a golden yellow color was definitely obtained, the duodenum was slowly washed with from 30 to 50 c.c. of a 25 per cent. solution of magnesium sulphate. Thereafter, every five minutes for from one to two hours, specimens were aspirated until the color of the bile returned to that obtained before the saline lavage, or until it was definitely concluded that no change in color or character was taking place. Sometimes siphonage was practiced to ascertain the amount of the "B" bile obtained. The specimens of bile were then compared as regards color, consistency, titer, and presence of a sediment. A careful microscopic examination of the centrifugal residue, both in the natural state and in stained smears, was made. Only occasional cultures were taken, as no special precautions had been observed regarding sterilization of the teeth, mouth or stomach of these hospital patients. (It is a question whether such measures are ever successful.) The main conclusions rest on the changes in character of the bile outflow that follows the saline lavage, and the careful examination of the sediment for pus, bacteria or crystals as evidence of a pathologic process in the biliary passages.

SIGNIFICANCE OF CHANGES IN COLOR AND CONSISTENCY OF BILE AFTER MAGNESIUM SULPHATE

The color of the bile in the fasting duodenal content varied considerably, ranging from a light green to a golden yellow, or to a darker yellow or canary green hue. Much depended on the titer of the specimen collected. The lighter colored specimens, particularly those with a greenish hue, were the ones which contained a greater amount of gastric secretion, as indicated by their higher acid titration. Those typically golden yellow contained no free acid and not more than 20 per cent. total acid (20 c.c. of tenth normal sodium hydroxid to neutralize 100 c.c. of duodenal contents). Cloudiness or heavy granular sediment was no proof of pathogenicity, since in most instances such a sediment was free of pus or bacteria and consisted only of precipitated bile pigments and bile salts.

After the magnesium sulphate lavage the flow of bile was truly more profuse and abundant, usually of a darker shade varying from dark yellow or orange to a dark brown or deep greenish brown. After from twenty to forty minutes the shades of bile became again lighter, and within from three fourths of an hour to one hour returned to the original hue. This change took place in a large percentage of cases (65 per cent.) and was accompanied by a pathologic condition (stones or chronic cholecystitis) in 62 per cent. of these cases. In the remaining 38 per cent. of the cases, a definite change to darker and cloudier bile occurred after the lavage with magnesium sulphate, yet no pathologic condition was found at operation.

On the other hand, we encountered seven cases in which no change of color followed the lavage. Of these, five cases had definite pathologic changes associated; obstruction of the cystic duct was the presumable interpretation according to Lyon. Of our five cases without color changes in the bile, three had at operation apparently stones in the cystic duct. In the other four cases of the latter series in which no change of color scale occurred, no cause was found at operation to explain the phenomenon.

Whence comes this darker, heavier bile ("B" bile) which follows the lavage with magnesium sulphate? Is it really gallbladder bile as contradistinguished from duct or liver bile? Are we entitled to the conclusions that this "B" bile is the gallbladder emptying itself? It is of some significance that 62 per cent. of the cases with change of color in the duodenal content after the saline lavage were associated with definite pathologic changes in the gallbladder or with stones, or both. One may not necessarily infer from this that dark bile is significant of a pathologic condition of the gallbladder, for the remaining 38 per cent of cases showed dark colored bile and yet the gallbladder and ducts were pronounced normal at the operating table. It would, in addition, be difficult to reconcile with this conclusion a case in our series. This was one in which the gallbladder had been removed at a previous date; in this instance, one of postoperative stricture of the common bile duct, the bile before the lavage was light lemon yellow, while after the saline lavage it was a dark brown, mucoid and grumose liquid. As there was no gallbladder present in this case, the change of color was evidently due to the flow of duct bile. We must, therefore, keep in mind, even conceding the point that the "B" bile is usually gallbladder content, that occasionally common duct bile can produce the same change.

The proof that the "B" bile is really gallbladder bile would lie in the similarity in color, consistency and microscopic findings between this secondary bile and the contents of the gallbladder as found at the operating table. For this purpose we made a special effort to ask the surgeon to aspirate the gallbladder immediately on exposing it and to allow us to examine the fluid so removed. The bile aspirated from the gallbladder at operation was nearly always darker, a deep dark brown shade, and more mucoid in consistency than the "B" bile in the duodenum. Microscopically, no similarity could be seen in the sediments of the two compared fluids. Often, on the basis of finding detritus and numerous pus cells in the duodenal sediment of the secondary bile, we would predict chronic cholecystitis, and often correctly so. But on sedimenting the fluid removed by aspiration of the gallbladder at the operation, we could not find the same pus cells and characteristic sediment found in the "B" bile specimen. This should not be a surprising statement, for old chronic cholecystitis with or without stones and with adhesions is usually, at the operating table, a sterile process, at least as regards the finding of frank pus or visible bacteria within the gallbladder lumen. We have received many such specimens and failed to find a purulent sediment or bacteria. Then why should we expect to find them in the "B" bile, even if this "B" bile is gallbladder fluid? If frank suppuration or an acute inflammatory process is present in this organ, the first result is a

swelling and occlusion of the cystic duct; and then again we would be unable to find the evidence of gallbladder disease in the duodenum.[10]

The conception of Aschoff and Bacmeister is that frank suppuration in the gallbladder (suppurative cholecystitis or empyema) never occurs when the cystic duct is draining, but only when it is occluded by stone or inflammatory edema. It is possible to conceive that chronic cholecystitis is usually associated with the production of small amounts of pus and bacteria from the common bile or hepatic ducts, and that such a cholangeitis creates the finding in the duodenal bile. But this is not our conception of cholangeitis, for in very few of these cases was there fever of even a low grade, or chills; they were nearly all afebrile interval cases.

ADDITIONAL CONSIDERATIONS

A few points remain to be discussed. What is the significance of cholesterin crystals in the duodenal specimens? We have found numerous such crystals when no stones existed. For instance, a case of Banti's disease showed many cholesterin crystals, and other entirely negative cases showed crystals. In the sediment of the material aspirated from the gallbladder, cholesterin crystals are not uncommonly present, apparently indicating supersaturated bile or bile stasis. In fact, cholesterin crystals are often precipitated out of normal specimens of bile, when the specimens are allowed to stand in the icebox.

Can any other salt than magnesium produce the play of colors seen on saline lavage? In a few instances sodium sulphate was tried with results similar to those obtained with magnesium sulphate. Einhorn[11] has experimented with sodium sulphate, sodium phosphate, etc., and attained results similar to those achieved with magnesium sulphate. We are reminded that peptone has been used clinically for this purpose. The flow of bile that follows the magnesium sulphate irrigation is apparently a saline action and not necessarily a specific quality of the magnesium ion. A freer flow of abundant bile was demonstrated by Okada[12] to take place after lavage of the duodenal mucosa with dilute hydrochloric acid, or with peptone solution, chloral, etc.

Recently, before the New York Surgical Society, Whipple pointed to some strong bacteriologic evidence favoring a direct relationship between the "B" bile and the content of the gallbladder. It is very likely that bacteriologic or cultural methods would give more promise than chemical or cytologic methods. The observations of Whipple are accurate, and deserve close attention.

The work of Lyon with magnesium sulphate has been employed by him with the therapeutic aim of facilitating the flow of pathologic bile from the duct system into the duodenum. His reports of success are enthusiastic, particularly in cases of catarrhal jaundice. My experience with the method as a therapeutic procedure is very limited. I have attempted duodenal lavage in a few cases of cholelithiasis, wherein chronic cholecystitis is suspected to be present, without noting any change in the clinical course. In cases of incomplete obstructive jaundice due to stone or new growths, a freer flow of bile took place after the lavage than before it. In catarrhal jaundice the icterus disappeared within a reasonable time, whether sooner than it would have done otherwise it is difficult to judge.

CONCLUSION

While we have not succeeded in utilizing the diagnostic test of Lyon for the identification of cases of chronic gallbladder disease, we think that the subject is entitled to much consideration and thought. The topic is one of such vital interest and importance that every suggestion and every such honest attempt to aid in its solution deserves our most painstaking attention.

47 East Sixty-First Street.

10. When the duodenal tube was first introduced, attempts were made to utilize the cytologic examination of duodenal contents for diagnostic purposes as described by Einhorn, by Bondi (Arch. f. Verdauungskr. **19**: 692, 1913) and by others. No uniform success or general approbation has attended these efforts.
11. Einhorn, M.: New York M. J. **113**: 313 (Feb. 19) 1921.
12. Okada: J. Physiol. **49**: 457, 1914.

SIGNIFICANCE OF DIABETES MELLITUS IN MENTAL DISORDERS

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While it has been long recognized that certain clinical forms of mental disorders are closely related to somatic affections, and various exogenous and endogenous toxins have been assigned a place among the etiologic factors of these diseases, the relationship, to a large extent, has been considered contributory, and sufficient emphasis has not been placed on the mental manifestations as a direct result of the somatic disease.

The general practitioner is often prone, in his efforts at correlation of symptoms and diagnosis, to regard the evidences of abnormal mental functioning as expressions of disease of the brain per se, and thus overlook many physical conditions which may be directly responsible for the mental symptoms.

Among these somatic conditions, those due to altered metabolism form an important group; and in this class of cases, the syndrome presented in connection with glycosuria is worthy of more than passing attention.

That lesions of the central nervous system are productive of glycosuria was first demonstrated by Claude Bernard in 1855, when, by puncture of the medulla between the levels of origin of the vagus and auditory nerves, he caused sugar to appear in the urine; and it is not infrequent to find under conditions of emotional excitement or nervous stress a transient glycosuria, while gross brain disease, paresis, tumors and lesions, especially in the neighborhood of the fourth ventricle, are often attended with this phenomenon of altered metabolism. In these conditions, the presence of sugar in the urine represents only one of the many end-products of altered cerebral function.

It is not uncommon to find patients suffering from various types of psychoses who present the clinical and laboratory evidences of diabetes mellitus, in which the glycosuria appears solely as a complication of the mental disorder. These psychoses should not be confused, however, with that more uncommon group in which the mental manifestations are unquestionably due to an autotoxemia resulting from faulty sugar metabolism and in which the psychic symptoms are typical and fairly constant.

REPORT OF CASES

During the past year, we have observed among the patients admitted to the State Hospital for the Insane at Danville, Pa., three cases of glycosuria, which illustrate concisely these two types.

PSYCHOSIS COMPLICATED BY DIABETES MELLITUS

CASE 1.—H. H., a man, aged 42, single, a laborer, whose father was mentally defective and whose mother was constitutionally inferior, early showed evidence of mental deficiency. He was unable to progress beyond the fourth grade studies, but adapted himself fairly well to his environment, supported himself by various kinds of laboring work, and until one year previous to admission was regarded as a simple-minded individual, a fit subject for the practical jokes of the boys around town, but inoffensive and harmless. He gradually developed, however, conduct disorders, and was finally arrested on the charge of improper conduct toward a young woman of the town and committed as insane.

Examination revealed emotional elation, euphoria and delusions of a sexual nature, absurd, loosely systematized, but fairly fixed. The intellectual level was 8 years and 9 months by the Binet-Simon scale. There were stigmas of degeneration, speech defect and impairment of hearing. Neurologic examination was negative. The blood Wassermann test was negative. Carbon dioxid alveolar tension was 34; glycosuria, 7 per cent.

CASE 2.—K. D., a woman, aged 50, married, whose father was insane, and concerning whose early life little was known, was first admitted to the hospital in 1901 at the age of 24, following the birth of her second child, at which time she presented the mental picture of an exhaustion infection psychosis. In 1903, she was discharged from the hospital and was subsequently admitted in 1916 from the county home, where she had been an inmate for ten years.

Examination and observation revealed inferior mentality. The patient showed emotional excitement, and had ideas of reference and delusions of persecution, which were mobile and loosely systematized. Physical and neurological examinations were negative. Routine laboratory examination always gave negative findings until February, 1920, when urinalysis revealed the presence of a small amount of albumin, epithelial cells and a trace of sugar. Under treatment, this condition promptly cleared up and the urine remained negative from May to October, 1920, when sugar again made its appearance (4.1 per cent.) and the patient has since shown the general clinical signs of diabetes mellitus.

In each of these cases, we are dealing with glycosuria occurring in a patient suffering from mental disease, but in which the somatic condition is in no sense contributory to the psychosis. It is interesting to note that in both of these patients, the development of the diabetes was unmarked by any alteration in the type or degree of the psychic manifestations.

PSYCHOSIS INDUCED BY DIABETES MELLITUS

CASE 3.—R. R., a man, aged 56, a merchant, with negative family history, was of average intellectual capacity, and had enjoyed good physical health until eleven months prior to admission, when he became depressed, had ideas of poverty, and developed delusions relative to the fidelity of his wife. The presence of sugar was demonstrated in the urine, following which the emotional depression deepened, the patient became listless and apathetic, and he was wholly unable to attend to business affairs and was admitted to a general hospital. Here, under intensive treatment, the sugar disappeared, and with it "the mental symptoms," and the patient returned to his home at the expiration of four weeks, apparently well. He failed, however, to continue the treatment prescribed, and again showed his former mental symptoms and was thereupon committed to this institution.

Examination and subsequent observation disclosed marked emotional depression, apathy and apprehension. Interest in his environment was impossible of stimulation, and the entire field of consciousness was occupied by concepts of a hypochondriacal nature with the stream of thought practically limited to expressions relating to the amount of sugar in the urine, diet, and fears as to the outcome of his condition. The skin was dry and harsh, the vision impaired; there was ptosis of the left eyelid; the radial vessels were somewhat sclerosed; there were marked varicosities of the veins of the lower extremities and a beginning ulceration of the dorsum of the right foot. There was general impairment of muscular strength. The systolic blood pressure was 148; the diastolic, 94. The blood Wassermann test was negative. Carbon dioxid alveolar tension was 28. The specific gravity of the urine was 1.030. A small amount of albumin, a few epithelial cells and sugar, 5 per cent., were noted.

COMMENT

This case presents the type of mental disorder associated with glycosuria as the etiologic factor. Beginning as a mild depression, these patients gradually develop ideas of poverty and of sinfulness, to which are frequently added delusions of persecution; and when they become aware of the underlying physical condition, hypochondriacal ideas with reference to the excretion of sugar are added and often dominate the psychic manifestations.

In these cases, the intensity of the mental symptoms is in proportion to the toxemia, and improvement of the sugar metabolism is marked by a corresponding approach to normal mental functioning.

CONCLUSIONS

1. The occurrence of sugar in the urine is frequently associated with diseases of the central nervous system, both organic and functional.

2. Diabetes mellitus may occur in the course of any psychosis as a purely physical complication.

3. Diabetes mellitus may be the direct etiologic factor in the development of a psychosis; if it is early recognized and promptly treated, the progress of the mental disorder may be stayed.

THE DIAGNOSIS OF CHRONIC GENITAL GONORRHEA IN THE FEMALE

WITH REFERENCE TO CUTANEOUS AND COMPLEMENT FIXATION TESTS

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In the gynecologic service at the Harlem Hospital, about 40 per cent. of the operative work is done for chronic adnexal disease. From the history of these patients and from signs of infection of the cervix, Bartholin ducts and urethra, we have assumed that the gonococcus is the etiologic factor in the production of this condition in the majority of instances. Laboratory findings from smears, and cultures taken from the lower genital tract, as well as from the tubes themselves at operation, have proved negative so far as the gonococcus is concerned. The only exception has been smears taken directly from pus exuding from the fimbriated end, during operative procedure, in acute tubal inflammations, and these have invariably shown the presence of the gonococcus.

In view of our inability to make a positive diagnosis of gonorrhea in chronic adnexal disease, we sought for some method by which we might detect the gonococcus as an infecting agent, although certain that this bacterium in the majority of instances was the causative factor.

This led us to undertake experimental work in cutaneous reactions and a statistical study of the value of the complement fixation test.

CUTANEOUS REACTION

Recent work in allergy[1] which resulted in obtaining positive cutaneous reactions among individuals infected with bacterial, animal and vegetable proteins, led us to attempt similar tests in gonorrheal infections. A protein was extracted from numerous strains of the gonococcus and dried to powder form. This powder reacted to the standard tests for protein, and was soluble in 0.2 per cent. solution of sodium hydroxid.

Cutaneous allergy of patients infected with gonorrhea was studied by Irons,[2] in 1912, and Shattuck and Whittemore,[3] in 1913. These investigators injected the glycerinated extract of the gonococcus, and reached entirely different conclusions as to the reliability of this test as a diagnostic agent. Their contradictory results influenced us to make further observations along these lines. We therefore performed a parallel set of experiments in each individual with the protein of the gonococcus and the glycerinated extract.

The patients selected for this experimental work were of four groups: First, those having positive laboratory evidence of gonorrheal infection. In this group there were ten patients, six males with active purulent urethral discharges and four females with purulent urethral and cervical secretions, all of whose smears showed gram-negative intracellular diplococci. Second, patients whose history and clinical findings stamped their infection as gonorrheal in origin, but whose smears were negative. There were sixteen females in this group. Third, a group of thirty-one patients with pelvic disease, the origin of which was doubtful. Fourth, a group of thirty-five entirely free from gonorrhea.

It might be said that in our endeavors to obtain subjects absolutely free from gonorrhea, we invaded the children's ward and performed these tests on male infants ranging from 1 month to 6 years of age.

Two methods of administration of the testing substances were used: (1) an intradermal injection of the solution was made in sufficient amount to raise a wheal from 1 to 2 mm. in diameter, and (2) scarification of skin areas was done similar to other allergic tests. Controls were made of both physiologic sodium chlorid solution and 0.2 per cent. sodium hydroxid.

In reading the reactions we considered negative those which presented no visible skin reaction. The doubtful reaction (or ±) we designated those which gave a redness over the injected or scarified site, but no extension from it. We called + those which gave a distinct reaction, consisting of redness and elevation of the inoculated area, extending 1 mm. outside its border. We considered ++ and +++ those in which the redness extended more than 2 or 3 mm. from the border of the inoculated site. Our readings in the first ten instances followed one hour, two hours, six hours, twenty-four hours and forty-eight hours. Subsequently we decided to take readings twenty-four hours following the injection, as the reaction at that time was at the maximum. The reactions in all four groups showed plus or minus in an indefinite and confusing manner. In Group 1 there would be several positive reactions, then several negative ones. Similar reactions occurred in Groups 2, 3 and 4. The results of these tests were, therefore, of no value as an aid in diagnosis.

No doubt these results were open to criticism in many ways, because we realized the handicaps and difficulties attendant on the tests, and our results may have been influenced. In the first place, the gaging of the dosage of the protein or the glycerinated extract might have been in error. Having this in mind, we modified the dosage by dilution; eight patients who had been injected with a very high dilution reacted very slightly or not at all. Others, who were nongonorrheal and were injected with the same strength dilution, showed similar results.

It might be said that our negative reactions may also be explained by the fact that our testing substances did not contain the particular strain of gonococcus which the injected patient harbored in her tissues. However, this would not explain the positive reactions in those not infected with the gonococcus.

The positive cutaneous reactions that were obtained both in the gonorrheal and nongonorrheal classes were, in our opinion, due to the sensitiveness of the skin to the toxicity of the testing substance, and not to any allergy or antibodies naturally possessed by the individual or manufactured in the body by the stimulation to a specific bacterium.

COMPLEMENT FIXATION TEST

The complement fixation test was made on patients with a gonorrheal history or, in lieu of an accurate history of infection, on patients in whom there were stigmas which would lead us to think that the disease was of gonorrheal origin.

Specimens of blood were taken from every patient in the gynecologic ward in whom we suspected genital gonorrhea. In thirty-one cases in which the diagnosis of adnexal disease was clinically that of gonorrhea, twenty, or 65 per cent., were reported as negative; six, or 19 per cent., reported as doubtful, and five, or 16 per cent., as positive.

In thirty-seven instances in which patients undoubtedly had other conditions, but in whom we suspected that a gonococcic infection might be present, including cases of indefinite pelvic infection, which were admitted for observation, the blood of twenty-seven, or 73 per cent was reported as negative; three; or 8 per cent., were reported positive, and seven, or 19 per cent., as doubtful.

The results of these sixty-eight complement fixation tests were most discouraging, especially as other investigators reported much higher percentages of positive results (Stevens and Heppner,[4] 59 per cent.; Lenartowicz,[5] 83 per cent).

These tests were performed at the laboratory of Bellevue Hospital, and were done according to the standardized technic.

Further results of the complement fixation test at the Post-Graduate Hospital were also found to be inconclusive. In the outpatient department the blood of 237 patients was examined as a routine irrespective of the diagnosis, at the N. Y. Department of Health Labora-

1. Schloss, O. M.: A Case of Allergy to Common Foods, Am. J. Dis. Child. **3**: 341 (June) 1912. Goodale, J. L., Boston M. & S. J. Nov. 5, 1914; **174**: 223 (Feb. 17) 1916; **175**: 181 (Aug. 10) 1916.
2. Irons, E. F.: Cutaneous Allergy in Gonococcal Infections, J. Infect. Dis. **11**: 77, 1912.
3. Shattuck and Whittemore: Gonococcus Vaccines and Glycerine Extracts of the Gonococcus in the Diagnosis of Gonorrheal Infections, Boston M. & S. J. **169**: 373, 1913.
4. Stevens, W. E., and Heppner, Maurice: Gonorrhea of the Lower Genito-Urinary Tract in Women, J. A. M. A. **75**: 1477 (Nov. 27) 1920.
5. Lenartowicz: Ueber den praktischen Wert der Komplementbindung in den gonorrhoischen Erkrankungen, Tygodnik lekarski **7**: 368, 1912; abst., Zentralbl. f. d. ges. inn. Med. **2**: 436, 1912.

tories, with eleven, or 4 per cent., positive; eleven, or 4 per cent., doubtful, and 215, or 92 per cent., negative. Only three of the positive cases had clinical evidence of chronic gonorrhea. One patient, whose blood was positive, was operated on; a fibroid tumor was removed supravaginally. The tubes and ovaries did not show any evidence of recent or old inflammation, being entirely free of adhesions, convolution or thickening. Of the doubtful cases, six could clinically be classed as of gonorrheal origin. Among the negative results there were eighty-five whose pathologic condition was probably gonorrheal from a clinical point of view. Of these eighty-five patients, four were operated on, and chronic salpingitis found in all, the condition being a purulent salpingo-oophoritis in one case, and the other three presenting thickened tubes with adhesions to broad ligaments and surrounding pelvic structures. Clinically, they must be classed as of gonorrheal origin, as their history and evidence of infection of the lower genital tract would indicate; although smears from the urethra and cervical canal were negative for the gonococcus.

In view of these contradictory results, it might be said that the patients so tested did not have a gonorrheal infection. We feel justified, however, in assuming a diagnosis of gonorrhea of those patients in whom there is present a chronic endocervicitis associated with a pyosalpingitis. We also class of gonorrheal origin patients having an endocervicitis of long standing, with no history of preceding trauma from childbirth or instrumentation, and whose history does not show a possible hematogenous origin from infected sinuses, teeth, tonsils or acute infectious disease, in spite of the fact that the smears from the cervix do not show the presence of the gonococcus. It is very seldom that a positive smear is obtained from chronic cases of gonorrheal endocervicitis irrespective of associated adnexal involvement, as the gonococcus in the cervix is rapidly destroyed by other bacteria of saprophytic variety, and a mixed infection occurs. It is only in the acute variety of endocervicitis, or a reinfection of the chronic cases, that, in our experience, smears may be positive.

CONCLUSIONS

1. Cutaneous tests made with the glycerinated extract and the protein extracted from the gonococcus is useless in detecting the presence of a gonorrheal inflammation of the urethra, cervix and adnexa.

2. A local gonococcal infection limited to the genital tract of females does not produce sufficient immune or toxic substances in the blood, or for a sufficient length of time to make the complement fixation test of diagnostic value.

3. The laboratory methods which we have at present to aid us in the diagnosis of chronic genital infections are extremely unreliable and inadequate, and the best guide is a reliable history of the case, together with the clinical findings.

Heredity in Tuberculosis.—The children of tuberculous parents who are the victims of active disease must in most cases, unless the necessary precautions are taken, be more exposed to the risk of infection. These children possess some natural immunity to the disease, for otherwise the percentage of children who develop tuberculosis should be much greater when the parents suffer from the disease than when they do not. The children of tuberculous parents when attacked by disease also show a greater resistance to the disease and a stronger tendency to recover than other persons.—*Tubercle* **2**:145, 1921.

Clinical Notes, Suggestions, and New Instruments

A SELF-RETAINING BLADDER RETRACTOR

H. W. E. WALTHER, M.D., NEW ORLEANS

The difficulty of securing a satisfactory exposure of the vesical interior in urologic surgery is well known. That good retraction is necessary for good work needs no argument. The instrument shown in the accompanying illustration was designed to supply the lack of sufficient assistance at the operating table. It has been in use in the operating rooms at the Hotel Dieu for more than a year and has given satisfaction.

No originality is claimed, either for the design of the frame or for the shape of the blades, the former being an adaptation from Balfour and the latter being modified Walker blades. Only the incorporating of these ideas with the constructing of a three-bladed, self-retaining instrument is claimed as original.

Self-retaining bladder retractor.

Apart from its self-retaining feature, so far as I am aware, this instrument is the first three-bladed bladder retractor to be presented in this country.

CONSTRUCTION

All of the blades are removable from the frame. The two lateral blades are constructed on swivel joints. By removal of the upper blade and bringing the two lateral blades together, then swinging one around so that they telescope one within the other, introduction through a small wound is made possible. Then by means of the thumb grips, these lateral blades can be pried apart, the blades rightly adjusted, and the upper blade introduced, fastened to the frame, and retraction made to the size of opening required.

For exposure of the bladder trigon and internal vesical sphincter region the retractor has given perfect satisfaction. Whether the cystotomy is for vesical calculi, the enucleation of a prostate, the removal of tumors, the management of diverticula or the implantation of radium needles anywhere within the viscus, this retractor has proved a valuable aid.

The instrument was manufactured for me by I. L. Lyons & Co., New Orleans.

1922 Marengo Street.

ASPIRATING DISSECTOR FOR TONSIL SURGERY

J. D. THOMSON, M.D., ATLANTA, GA.

This dissector is similar in form to the Yankauer separator, but is one inch longer. It is 8½ inches long (over all) and has a 4 mm. bore, which makes its appearance on the convex surface of the beak, in the form of an oval opening (9 mm. in the long axis) with its center 15 mm. from the tip of the beak. On the upper surface, 5 inches from the tip of the beak, is a counter opening, 6 mm. in diameter. From the end of the handle projects a nipple with a shoulder (4 mm. bore). The aspirating tube is 24 inches long and connects by glass "connection" with the bottle tube. It is of stethoscope tube, as this does not bend at an acute angle from weight, nor does it slip

Aspirating dissector.

from the nipple. In use, the counter opening is controlled by the index finger. When closed, the beak opening is in action; when open, the beak opening is in abeyance. I have now used this instrument enough to be able to say that it is serviceable. The instrument was made by E. B. Meyrowitz, New York.

78 Forrest Avenue.

A SYPHILITIC MANIFESTATION IN THE NOSE

REPORT OF TWO CASES

HAROLD M. HAYS, M.D., NEW YORK

The engorged mucous membranes, covering the turbinates and the nasal septum, if such mucous membrane is not distinctly polypoid, will invariably shrink under the application of a 1 per cent. cocain solution, to which is added a third part of a 1:1,000 solution of epinephrin chlorid. An observation of equal importance is that if these mucous membranes do not shrink perceptibly under the application of such a solution, there is in all probability a syphilitic infiltration of the mucosa. The nasal mucosa is first sprayed with the solution, after which pledgets of cotton immersed in the medicament are inserted into the nose. These are removed in from five to ten minutes. If the mucosa still obstructs the nose, the inference is plain that there is some pathologic condition of this membrane which will not allow it to shrink—probably a syphilitic infiltration. This is evidenced in the following case reports:

REPORT OF CASES

CASE 1.—A man, aged 40, consulted me because of an acute infection of the antrum on the left side. The entire left side of the nose blocked because of what appeared to be a marked deviation of the septum. Attempts were made to clear up the acute antral condition by shrinkage of the mucosa and suction. Even under repeated applications of cocain and epinephrin there was little difference in the nasal space. He was advised that an operation on the septum would be necessary after the acute symptoms subsided. At the end of two weeks, I attempted to remove what was thought to be the obstructing cartilage and bone, although I had been advised by the patient that a similar operation had been performed a few months before. Incision in the mucosa revealed a very much thickened membrane without any evidence of bone or cartilage. A number of linear incisions were made in this mucosa, in the hope that it could be made to shrink, and the nares were tightly packed.

At the end of two days, I noticed that there was no appreciable difference in the nasal breathing space. The patient complained of a sore throat. Examination disclosed numerous whitish ulcerations on the right side which looked like mucous patches. A Wassermann test, taken at once, was reported four plus. He was immediately referred to a specialist, who instituted proper treatment. At the end of four weeks, his nasal condition cleared up completely, and he has been well ever since.

CASE 2.—A married woman, aged 30, was referred to me because of a complete nasal obstruction on the right side of the nose for which an operation had been advised. Examination revealed what seemed to be a large polypoid inferior turbinate which allowed of no breathing space. This mass became no smaller after a prolonged treatment with cocain and epinephrin. I made arrangements for the operation, but in view of my experience in Case 1 only a few months before, I had a blood test taken without allowing the patient to know what it was for. The report of the Wassermann test was four plus. There was absolutely no other evidence of syphilis, the woman had led an exemplary life, and test of her husband's blood, later on was negative. The administration of proper antisyphilitic treatment cleared up the nasal obstruction entirely.

COMMENT

A Wassermann test should be made in all cases of nasal obstruction in which the obstruction is due to a thickened mucous membrane which will not shrink under the application of cocain and epinephrin.

2178 Broadway.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

GUAIACOL BENZOATE.—Guaiacolis Benzoas.—Benzosol. $C_6H_5COO.C_6H_4.OCH_3$. The benzoic acid ester of guaiacol.

Actions and Uses.—Guaiacol benzoate is decomposed slowly in the intestinal tract into guaiacol and benzoic acid, which exert their usual actions. The liberated constituents are absorbed and excreted in the urine. It is claimed to be non-irritating.

Its uses are analogous to those of creosote and of benzoic acid. It is said to be useful in incipient pulmonary tuberculosis, as an intestinal antiseptic in fermentation, diarrhea, typhoid fever, diabetes mellitus and as a urinary antiseptic in cystitis, etc. (See general article on Naphthol Compounds.)

Dosage.—From 0.2 to 0.6 Gm. (3 to 10 grains), in powder, capsule, pill, or suspended in liquids or as an emulsion.

Guaiacol benzoate occurs in minute colorless crystals; odorless or having a faint aromatic odor; tasteless or nearly so. Guaiacol benzoate is almost insoluble in water; soluble in ether and chloroform; also soluble in hot alcohol. Guaiacol benzoate melts at from 59 to 61 C.

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SATURDAY, JUNE 4, 1921

RESULTS OF ANTITYPHOID VACCINATION IN THE WORLD'S ARMIES

It is strange that of all nations engaged in the World War, only Germany expresses doubt as to the efficiency of antityphoid vaccination. During the whole period of the war, and even after it, there has been disagreement among the Germans as to the benefits derived from inoculation. Friedberger, who holds that real immunity can be produced only by living germs, maintains that the admitted reduction in the number of cases of typhoid in the thoroughly inoculated German army is to be attributed to the sanitary measures that were employed. A review by Banus [1] of the literature on the protective value of antityphoid inoculation, as shown by the results obtained in the armies during the war, indicates that German skepticism results from the inefficiency of the vaccine used and faulty methods. Kolle's vaccine, which has been heated to 60 C., seems to produce a far lower degree of immunization than vaccines used in other countries, and triple inoculation was never used extensively. Before the war the Italian army had used both the Kolle vaccine and Vincent's triple vaccine, in which the bacilli are killed by ether, and secured a relative incidence, after three injections, of 7.2 as against 0.3, in favor of the Vincent vaccine, in the Italian armies in North Africa. During the course of the war the Kolle vaccine was improved by using a temperature of 53 to 55 C. for killing, but paratyphoid bacilli were not often used. In the German army in Roumania an incidence of 101 typhoid to 552 paratyphoid cases was observed, which certainly indicates that the typhoid vaccination was of influence. Wolff-Eisner and others also observed instances in which epidemics were controlled by vaccination, so that there seems to be considerable favorable evidence and no proved unfavorable evidence even among the Germans.

With all the Allied armies the testimony is unanimous. In previous wars of the last half century the typhoid mortality had varied from 11.2 to 21 per thousand troops, whereas in the World War we find such figures as 0.4 per hundred thousand (French army, 1917). We are all more or less familiar with the convincing experience of the American army, both in peace and in war, but it is interesting to learn the net results obtained in other armies. Before the war there had been numerous opportunities to compare the typhoid incidence in vaccinated and unvaccinated troops exposed to similar opportunities for infection, and always the results have supported the great value of preventive vaccination. Summing up a large series of statistics from numerous armies, it is found that the frequency of typhoid in vaccinated and unvaccinated troops is generally in about the ratio of one to ten. During the first two years of the war the British records show that the morbidity rate was fourteen times greater in the unvaccinated and the mortality rate was forty-two times greater. In later periods, the discrepancies were not quite so great. As in many other reports, the specificity of the vaccination was established, for paratyphoid was relatively high until triple vaccines were employed. In the French army during the first months of the war, vaccination was not practiced extensively or systematically; but after February, 1915, it was progressively extended. The results are striking, for we find a steady fall from morbidity 678, mortality 98.6 per hundred thousand before this date, to morbidity 5.7, mortality 0.4 per hundred thousand in 1917. Interesting evidence was furnished by the French troops in Algiers, where inoculation was compulsory among 211,000 soldiers; only 154 cases of typhoid occurred, and of these 108 occurred in men who had escaped vaccination through fraud.

Figures for the entire Italian army are not available, but they report that the mortality among the typhoid patients who had been inoculated is much less than among the uninoculated, and the duration of the illness is much less. The Japanese army reports show that the morbidity of the inoculated soldiers is but one-seventh that of the uninoculated, the mortality but one-eighth. The morbidity in the army before compulsory vaccination was 8 per thousand; since vaccination it has fallen to 0.7, and the civilian population has shown no similar diminution in the incidence of typhoid during the same period. Of all the armies, however, the results obtained have been most striking with the American forces, which were practically 100 per cent. vaccinated. This foreign reviewer says:

> The results are shown in Russell's [2] article on the incidence of typhoid in the American army. These results are really surprising. During the period of the participation of America in the war, April, 1917, to November, 1919, four million men served in the army. There were 1,056 cases of typhoid, with 156 deaths. That this low incidence is due to the effect of the vaccination and not to improved sanitation is shown by comparing the rate found in civil life at the same time, and especially with that referring to the male population of military age.

Thus, in the Spanish war, one typhoid death occurred among every seventy-one soldiers; in 1917 there was

1. Banus, M. G.: Internat. J. Pub. Health **2**: 164, 1921.

2. Russell, F. F.: Typhoid Fever in the American Army During the World War, J. A. M. A. **73**: 1863 (Dec. 20) 1919.

one typhoid death for each 7,143 civilians; during the World War there was one typhoid death for each 25,641 American soldiers. And the experience of the recent epidemic at Salem, Ohio, shows that our discharged soldiers are protected by their typhoid vaccination for at least two or three years.[3] In the face of all these demonstrations, it would seem that Germany might charge up on the credit side of her war ledger some useful information received from the Allies concerning the prophylactic value of antityphoid inoculation.

WHAT IS THE CAUSE OF PELLAGRA?

Like most of the diseases that remain obscure in etiology, pellagra has had enthusiastic advocates of an "infection theory." This was true also of beriberi and of sprue, for example. Largely as the result of investigations of the United States Public Health Service, particularly the studies made under the leadership of Goldberger, the view has been circulated and widely accepted that pellagra properly falls into the category of dietary deficiency diseases. In a present-day discussion of nutritional deficiencies, one naturally thinks of the vitamin factor among the possibilities for consideration. The problems concerned have frequently been referred to in THE JOURNAL. It has been an outstanding fact in the Public Health Service observations that the diet in the pellagrous households was poorer and less well "balanced" from a modern nutritional standpoint than was the regimen in the nonpellagrous families. Changes in diet have brought relief or disease, respectively, depending on the nature of the variations introduced. Furthermore, all attempts to produce pellagra by methods of direct inoculation have thus far entirely failed.

Pellagra, says a recent writer, illustrates excellently how, despite a sufficient number of calories and despite a sufficient quantity of protein, the food may still be highly unsatisfactory.[4] This epitome represents the views of a large group of those concerned with the disease characterized by the four "d's": dermatitis, diarrhea, delirium and death. Other investigators, however, whose earnestness and competence cannot be minimized, have never accepted the deficiency hypothesis as an adequate explanation of the etiology of pellagra. They make the charge of "not proven" against it. Among them MacNeal[5] of the New York Post-Graduate Medical School, while arguing that the specific cause of pellagra is still unknown, has championed the existence of two etiologic factors, namely: (1) the specific causative factor which is a living organism, an infectious agent derived directly or indirectly from a previous case of the disease, and (2) a factor or group of factors, quite nonspecific, which serve to reduce the resistance of the victim. In the latter group are recognized malnutrition, either from inadequate food or inability to utilize food in an adequate manner, cachexia of disease, overwork, depressing influence of hot weather, strain of reproduction in women, involution of old age, alcoholism and many other influences. The undiscovered specific causative factor, according to MacNeal's conception, most probably resides in the gastro-intestinal tract, and the absorption of its products from the alimentary canal is what gives rise to the distinct manifestations of pellagra.

The evidence marshaled in defense of such views is largely epidemiologic in character. It deals with analogies and comparisons that have often been reiterated. Proximity to pellagrins is alleged to promote the danger of contracting the disease; but prolonged proximity often means common dietary possibilities and similar dietary habits. The British as well as the American workers are of divided opinion. Editorial argument will not solve the important question of the etiology of pellagra. Further investigation, clinical and experimental, is urgently demanded so that a common basis for agreement can be reached. Let us have it by all means. This much is certain: Good nutrition plays an admittedly important part in preventing pellagra; and sanitation can never do harm, to say the least. Perhaps, thanks to proper nutrition and sanitation more universally adopted, we shall ere long experience the anomaly of finding a disappearance of pellagra before its true cause has been convincingly demonstrated.

THE LOSS OF ANTISCORBUTIC POTENCY IN FOODS

The world-wide investigations of scurvy which have been in progress are destined to clarify the knowledge of the conditions that tend to bring about the disease. The newer studies which recognize that a vitamin-like factor is involved have likewise already begun to throw light on seeming discrepancies relating to the conservation and destruction, respectively, of the antiscorbutic potency of foods. Thus, heating, desiccation and aging have in turn been charged with deteriorating effects on the content of so-called vitamin C in foods. Nevertheless, there are foods that can be heated quite vigorously without complete loss of antiscorbutic power; to this the efficiency of canned tomatoes bears witness. There are procedures by which milk can be successfully dried without becoming entirely devoid of antiscorbutic properties;[1] and orange juice has been concentrated to a dry state while still retaining its antiscorbutic virtues.[2]

3. Bunn, W. H.: The Salem, Ohio, Typhoid Epidemic, J. A. M. A. **76**: 1159 (April 23) 1921.
4. Harrow, B.: Vitamines, New York, E. P. Dutton & Co., 1921, p. 169.
5. MacNeal, W. J.: Pellagra, Am. J. M. Sc. **161**: 469 (April) 1921.

1. Hess, A. F.: Scurvy Past and Present, Philadelphia, J. B. Lippincott Company, 1920.
2. Givens, M. H., and McClugage, H. B.: Orange Juice in Scurvy, Am. J. Dis. Child. **18**: 30 (July) 1919. Givens, M. H., and Macy, I. G.: The Antiscorbutic Property of Some Desiccated Fruit Juices, J. Biol. Chem. **46**: 11 (March) 1921. McClendon, J. F.; Bowers, W. S., and Sedgwick, J. P.: The Antiscorbutic Properties of Commercially Dried Orange Juice, ibid. **46**: 9 (March) 1921. McClendon, J. F., and Dick, S. M.: The Commercial Drying of Orange Juice Retaining Its Antiscorbutic Properties, ibid. **46**: 10 (March) 1921.

Again, whereas certain foods have been shown by Hess to be affected in their content of the antiscorbutic vitamin C by age, Givens and Macy's investigations show that this is not an invariable or inevitable consequence.[3]

Explanations for some, at least, of these paradoxical experiences have been ventured on several occasions. For example, an alkaline reaction has been asserted to facilitate greatly the destruction of vitamins B and C by heat.[4] Thus, variations in the reaction of foods during heating or desiccation may suffice to produce differing results. Acid fruits have long since been found to resist the extreme deterioration with respect to antiscorbutic efficiency that many other foods show after exposure to heat. Last year, Hess [5] reported that the antiscorbutic vitamin is destroyed by oxidation. Treatment of raw milk, for example, with hydrogen peroxid suffices to bring about this loss. Orange juice subjected to oxygen for a short period was likewise found to have lost some of its potency. Hess suggests that the harmful effect of "aging" may be interpreted as being due to the deleterious action of slow oxidation. He adds that as foodstuffs undergo oxidative processes frequently in the course of various manipulations, no doubt this factor plays an important part. This action probably explains the differences in the antiscorbutic potency of foodstuffs that have been treated in apparently similar ways; for example, of milk that has been heated in open pans or in hermetically sealed bottles.

The phenomena of instability of the antiscorbutic factor toward oxygen have been confirmed by Zilva [6] at the Lister Institute for Medical Research in London. His experiments revealed that bubbling air at ordinary temperature through an antiscorbutic solution inactivated it. It was found, on the other hand, that on boiling an active solution for two hours in an atmosphere of carbon dioxid, no marked diminution in the activity could be recorded, while on boiling a similar solution for one hour during which time air was bubbled through, almost the entire activity was lost. The facts at present available may be summarized as showing sensitiveness of both the fat-soluble vitamin (A) and the antiscorbutic vitamin (C) toward oxidative influences, whereas the water-soluble factor B—sometimes called the antineuritic vitamin—seems far more stable toward heat and oxidation. These facts will require due consideration hereafter in all manipulations to which vitamin-bearing food materials are exposed.

In this connection, reference to a recent report [7] of infantile scurvy following the feeding of modified raw certified milk almost from birth deserves some consideration. Such cases have not been unknown in the past.[8] Faber,[7] who observed the most recent patient, suspects that sodium citrate which was included in the infant's diet over a long period may have been responsible for destruction of the antiscorbutic vitamin; and he concludes that it would appear justifiable to regard sodium citrate in formula preparation with considerable distrust and to give preference to other substances, such as barley water, over the mineral salts when it is desired to alter the coagulability of cow's milk. In the light of recent evidence on the variation of the vitamin content of cow's milk with the feed of the animal, may it not be that the cases cited represent chance instances of feeding with milk of unsuspected low antiscorbutic potency due to the corresponding deficient diet of the lactating animal?

3. Givens, M. H., and Macy, I. G.: The Antiscorbutic Property of Some Desiccated Fruit Juices, J. Biol. Chem. **46**: 11 (March) 1921.

4. Hess, A. F., and Unger, L. J.: The Deleterious Effect of the Alkalization of Infants' Food, J. A. M. A. **73**: 1353 (Nov. 1) 1919. Osborne, T. B., and Leavenworth, C. S.: The Effect of Alkali on the Efficiency of the Water-Soluble Vitamine B, J. Biol. Chem. **45**: 423 (Feb.) 1921.

5. Hess, A. F.: Brit. M. J. **2**: 147, 1920. Hess, A. F., and Unger, L. J.: The Destructive Effect of Oxidation on Antiscorbutic Vitamine, Proc. Soc. Exper. Biol. & Med. **18**: 143, 1921.

6. Zilva, S. S.: The Influence of Aeration on the Stability of the Antiscorbutic Factor, Lancet **1**: 478 (March 5) 1921.

7. Faber, H. K.: Infantile Scurvy Following the Use of Raw Certified Milk, Am. J. Dis. Child. **21**: 401 (April) 1921.

8. The American Pediatric Society's Collective Investigation on Infantile Scurvy in North America: Tr. Am. Pediat. Soc. **10**: 5, 1898. Morse, J. L.: Infantile Scorbutus, Boston M. & S. J. **170**: 504, 1914.

9. Thannhauser, S. J., and Czoniczer, G.: Kennen wir Erkrankungen des Menschen, die durch eine Störung des intermediären Purinstoffwechsels verursacht wird? Deutsch. Arch. f. klin. Med. **135**: 224, 1921.

THE PROBLEM OF GOUT

The problem of the etiology of gout has long hinged upon the theories of the metabolism of purins in the organism. No clear conception of the latter can be formulated without due consideration of the transformations which both the exogenous and the endogenous precursors of uric acid undergo in the body. Until recently it was believed that nucleoproteins, which represent the chief dietary sources of purins, are disintegrated by enzymes present in the alimentary tract so that free purins, such as adenin and guanin, are liberated for absorption. It was supposed that the latter reach the blood stream and subsequently undergo deamination and oxidation, resulting in the formation of uric acid.

This hypothesis of the early stages in nucleoprotein metabolism must now be modified. The nucleic acids are not so completely "digested" as has been supposed. Instead of the formation of free purins, it is the nucleosids, complexes of purins and carbohydrate radicals, that are liberated in the lumen of the enteric tract. Thus, adenosin and guanosin, rather than the smaller fragments adenin and guanin, represent the soluble nucleic acid derivatives that are absorbed. It appears that the nucleosids are not deaminated until after absorption, whereupon the free purins are split off and proceed rapidly in their further transformation to uric acid. Corresponding with this, if we may believe the results of Thannhauser and Czoniczer [9] of Müller's clinic in Munich, free purins, other than uric acid, are not found in the blood: they are represented by nucleosids. No essential differences in this respect have been observed between persons in normal health and those characterized by the so-called gouty diathesis. The circulating precursors of uric acid thus are purin-carbohydrate complexes, the nucleosids.

Brugsch [10] has championed the view that in certain cases, at least, the deposition or accumulations of urates which characterize gout are due to a faulty, increased purin metabolism. There is little occasion any longer to accept this view; in fact, the evidence points to diminished destruction or elimination rather than to an overproduction of purin compounds. If we accept the views of several modern investigators that the human organism is virtually incapable of destroying uric acid, then failure to destroy can play no part in the etiology of gout.[11] Accordingly, interest remains centered on the problem of elimination. Cases of hereditary or constitutional type may be regarded primarily as having their origin in a functional inferiority of the kidneys with respect to the capacity to eliminate urates. The latter accumulate in blood and tissues, as do other unexcreted catabolites. They may in turn lead to insidious, diffuse nephritic changes of a severer type, resulting ultimately in far greater incapacity to excrete uric acid. This represents the secondary forms of gout. Other theories must be subsidiary to the fundamental fact that the kidneys, rather than the tissues or faulty metabolism, are a prime factor.

Current Comment

FLIES AS DISTRIBUTORS OF INTESTINAL PROTOZOA

Since the classic positive demonstration by Smith and Kilbourne that insects may be instrumental in the transmission of disease, the house fly has often been accused of being one of the disseminating agents. Today this familiar insect pest stands not only accused but also repeatedly and convincingly convicted of the serious charge. The association of the fly with pathogenic bacteria is frequently pernicious to public health. The micro-organisms of suppuration, the germs of typhoid, cholera, dysentery and tuberculosis, not to mention others less prominent in the public mind, have been detected in league with this omnipresent insect traveler. The incrimination that epidemics may be brought about through the dissemination of infectious material by flies has repeatedly been sustained. How persistently they may harbor the sources of danger is shown, for example, by Ficker's [12] observation that flies fed on typhoid cultures may still give off the bacilli twenty-three days after infection. Heretofore the bacterial parasites have claimed foremost consideration in relation to the fly. But now a new menace looms up. Root,[13] an entomologist of the newly established School of Hygiene and Public Health at Johns Hopkins University, has demonstrated the possibility of a hygienically undesirable association between flies and intestinal protozoa, including the genus *Endameba* of unsavory reputation. Fortunately, the free forms ingested by flies are apparently killed within an hour, without encysting. But cysts of the intestinal protozoa survive much longer in the bodies of flies. According to Root, flies feeding on a human stool containing cysts or free forms of intestinal protozoa will take large numbers of them into their intestines and deposit them again in their own feces. Since all stages of the protozoa are killed within a few minutes by drying, such fly feces are dangerous to human beings only when deposited on moist or liquid foods. A fly which has once ingested fecal material containing protozoa may deposit feces of its own which contain the infective forms of the protozoa at any time, from a few minutes after feeding until the most resistant forms, the cysts, are dead. The deposited cysts of amebas may survive as long as two days under favorable conditions. These experiments emphasize anew the importance of flies as carriers of disease-producing organisms from human feces to human food.

10. Brugsch, T.: Diagnose, Wesen und Behandlung der Gicht, Berlin. klin. Wchnschr. **49**: 1597, 1912.
11. A recent discussion is given by Gudzent, Wille and Keese: Experimentelle Beiträge zur Pathogenese der Gicht, Ztschr. f. klin. Med. **90**: 147, 1920.
12. Ficker: Arch. Hyg. **46**: 274.
13. Root, F. M.: Experiments on the Carriage of Intestinal Protozoa of Man by Flies, Am. J. Hyg. **1**: 131 (March) 1921.

SMOKING VERSUS CHEWING

Newspaper comment insinuates persistently that My Lady Nicotine is to follow her paramour, John Barleycorn, to realms outside the blue laws. The reaction to these intimations, however, indicates that she will have more mourners and fewer detractors if she should ever be started along the same route as the more or less lamented John. From the medical standpoint, in any case, there is far less positive evidence of anatomic and physiologic damage from nicotin than from alcohol, to say nothing of the sociological aspects of the matter. In fact, there are not many reliable studies on the influence of tobacco on the human organism. The most recent one takes the form of a practical study of the relative working efficiency of those who use varying amounts of tobacco.[1] A number of men doing the same sort of work in a bottle-making factory were observed as to their speed of performance, and the results were compared with their habits in relation to tobacco. According to these figures the best work was done by the heavy smokers and those who do not smoke at all, while the men who chew are far below the average, although accompanied by the light smokers in amount of production. Such results are difficult of interpretation, and the only thing that seems very definite is the lower efficiency as a group of the men who prefer to chew their tobacco. If their inefficiency is to be attributed to the nicotin, a ready explanation is to be found in the fact that, in smoking, most of the nicotin is either burned or exhaled with the smoke, while the chewer has opportunities for absorption both from swallowed saliva and from the mouth itself. We are probably accustomed to underestimate the amount of absorption that may take place in the mouth, but it may be considerable and rapid. The late E. Fletcher Ingals,[2] in his graphic story of his own experiences with angina pectoris, extols the speed of absorption of nitroglycerin from tablets dissolved on or under the tongue. Unfortunately for the interpretation of the results of their

1. Baumberger, J. P.; Perry, Edna E., and Martin, E. G.: An Output Study of Users and Non-Users of Tobacco in a Strenuous Physical Occupation, J. Indust. Hyg. **3**: 1, 1921.
2. Ingals, E. F.: Angina Pectoris, J. A. M. A. **70**: 969 (April 6) 1918.

study, the authors of the paper under consideration do not take into account the ages of their light and heavy smokers and chewers, or other factors that might be of great significance. Perhaps the heavy smokers surpassed the light smokers because they were a heartier lot of workmen, who took their pleasures and their labors on "high."

RED CELL REFUSION IN THE PRODUCTION OF THERAPEUTIC SERUMS

The continued high level in diphtheria deaths maintained in this country during the last few years makes particularly valuable any step toward lessening the cost of diphtheria antitoxin. A marked improvement in the production of large quantities of therapeutic serums is forecast by the recent observations of Penfold [1] on the value of red cell refusion. It is well known in serum institutes that when horses are immunized and bled every week, 6 or 7 liters of blood or more being taken each bleeding, the animals soon get out of condition and do not live long. The procedure used by Penfold consists in receiving the blood in oxalate solution and allowing the bottles to stand to permit sedimentation of the red cells. After sedimentation has occurred, the supernatant plasma is drawn off and the red cells reinjected into the veins of the horse. By this means, without any artificial restoration of the blood volume, the horse may be bled to an enormous extent without any serious detriment to its physical condition. As much as 60 liters of blood have been taken from a horse in the course of ten days without any resulting anemia. Owing to the fact that the bleedings may be increased in number at the period of maximum antibody content of the blood, the potency of the serum derived from the plasma is greatly increased. This procedure should reduce still further the cost of diphtheria antitoxin, thereby facilitating its wide distribution and the early administration of large doses.

LIMBERNECK IN POULTRY AND BOTULISM IN MAN

The outbreaks of botulism observed in the United States within the last few years as the result of eating spoiled food have awakened an unusual interest in its etiologic factors. The subject has given rise to acrimonious debate, often characterized on each side of the controversy by more ardor than information. Part of the confusion is unquestionably attributable to the uncertainty regarding the saprophytic micro-organism responsible for the potent toxin in the deteriorated products consumed. Clarity is likely to be secured in the near future, in view of the extensive researches which the problem has called forth in a number of important laboratories. Meanwhile it may not be amiss to call attention anew to a suggestion which Dickson [2] offered in his extensive report on the subject in 1918, namely, that *Bacillus botulinus* may be an etiologic factor in the so-called "limberneck" of poultry. Affected birds display prostration, incoordination of movement and weakness, particularly striking in the pendulent or limber neck. Following a number of failures in previous studies, Graham and Schwarze [3] of the University of Illinois at Urbana have at length demonstrated that certain types or strains of the botulinus organisms are undoubtedly fatal to mature chickens, giving rise to symptoms indistinguishable from the widely known limberneck. The bacteria have been isolated from the feed and the intestinal contents of birds fatally affected in sporadic outbreaks. It is the toxin produced by the saprophytes which provokes the fatal intoxication; consequently one can understand why a corresponding antitoxin has been recommended as a specific prophylactic agent. As poultry are more or less closely associated with man in his everyday life, it cannot be safely assumed at present that the barnyard fowl is not a factor—possibly an important factor—in the distribution of the harmful virus.

MAKING BEANS BETTER

Most persons trained in the science of nutrition are ready to laud the dietary virtues of milk. As a source of energy, of proteins suitable for the nutrition of growth, of useful inorganic elements and of the various vitamins, milk ranks high. Even the temperamental vegetarian will usually admit milk into his carefully guarded regimen. Again, the students of diet realize clearly that gelatin, though widely used as an acceptable article of food, is qualitatively inferior to many proteins. Unlike the proteins of milk, it cannot function as the sole source of the nitrogenous nutrients essential to the support of life. Other foods are still the subject of considerable debate. One hears that certain items in the diet are likely to be "too acid" or "heating" or "indigestible" or what not. Various species of beans are eaten in large amounts in many parts of the world; yet they belong in the category of the equivocal, so far as dietary virtues are concerned. The difficulty with which beans are digested in some instances does not lack the confirmation of real scientific observation. Thanks to the discoveries of Johns and his co-workers,[4] our knowledge of the nutritive chemistry of edible beans has been specifically enriched. Raw beans were found unsuited as a food for the subjects investigated. When they are cooked, the beans are digested and tolerated much better; yet animals cannot grow well if they receive no other proteins than those derived from these leguminous seeds. The addition of the sulphur-containing amino-acid cystin supplements the bean proteins excellently by supplying an essential factor for growth in which they are deficient. If man cannot live by bread alone, it is doubtless equally true that he cannot live by beans alone. What they lack to make a "complete" protein, other albuminous foods readily supply. We need not give up the cherished beans, but we must continue the tra-

1. Penfold, W. J.: M. J. of Australia **2**: 307 (Sept. 25) 1920.
2. Dickson, E. C.: Botulism, a Clinical and Experimental Study, Monograph 8, Rockefeller Inst. for Med. Research, July 31, 1918.
3. Graham, R., and Schwarze, H.: Avian Botulism (Type A) or Limber Neck, J. Infect. Dis. **28**: 317 (April) 1921.
4. Johns, C. O., and Finks, A. J.: Studies in Nutrition, II, The Rôle of Cystine in Nutrition as Exemplified by Nutrition Experiments with the Proteins of the Navy Bean, Phaseolus Vulgaris, J. Biol. Chem. **41**: 379 (March) 1920. Finks, A. J., and Johns, C. O.: Studies in Nutrition, VI, The Nutritive Value of the Proteins of the Lima Bean, Phaseolus Lunatus, Am. J. Physiol. **56**: 205 (May) 1921. Johns, C. O., and Finks, A. J.: Studies in Nutrition, VII, The Nutritive Value of the Proteins of the Adsuki Bean, Phaseolus Angularis, ibid. **56**: 208 (May) 1921.

ditional practice of making them only a part of a protein-supplemented ration. Nor shall their undisputed virtues be minimized. Beans are rich in vitamin B, even though they have not yet attained the dignity of having the fact heralded in flamboyant advertisements.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

War on Fake Eye Doctors.—The California League for the Conservation of Vision and the state board of optometry have started a campaign in southern California to eliminate incompetent practitioners and pedlers of eyeglasses.

Chiropractors Convicted.—It is reported that the following chiropractors have recently been convicted for practicing medicine without licenses: C. A. Anderson, Fresno, fined $600, or 150 days in jail; Claud L. Houch, San Francisco; C. Z. Landreau, Huntington Park, who has ceased practicing and is now employed on a dredger, given a four months' suspended sentence; Harry S. St. Clair, Los Angeles, fined $200.——L. J. Snow, a chiropractor of Petaluma, Calif., was fined $200 on May 9 for violating the state medical laws. He paid the fine and declared his intention to continue practicing. He was denied a new trial.

Physician Faces Revocation of License.—It is reported that Dr. Jacob L. Arbogast, Sacramento, who was convicted last February on a charge of violating the state poison act, by prescribing narcotics, and fined $300, has been cited to appear before the state board of medical examiners, June 27, at San Francisco, and to show cause why his license should not be revoked. Among others cited to appear before the board and explain charges of illegal practices and misconduct are Dr. Amos J. Landis, Reading, also accused of violating the poison act; Galen R. Hickok of the Salada Beach, San Mateo County "Mystery Castle" case, and Dr. Martha R. Allen, said to be an associate of Hickok.

COLORADO

Ophthalmology and Otolaryngology Congress.—The Colorado Congress of Ophthalmology and Oto-Laryngology will meet in Denver, July 29 and 30.

Colorado Ophthalmological Society.—The final meeting for the year of the society was held at the Minnequa Club, Pueblo, May 21. The Pueblo members entertained the members of the society at a dinner served at the club.

New Laboratory for Colorado Springs.—Physicians of Colorado Springs have incorporated a new laboratory for general pathologic and roentgen-ray work. The work will be done for all physicians of El Paso County at actual cost.

CONNECTICUT

Personal.—At a meeting of the Yale Corporation held, May 19, announcement was made that Prof. August Krogh of Copenhagen, recently awarded the Nobel Prize for Physiology, and Prof. Clemens von Pirquet, the authority on the subject of the nutrition of children, have been appointed lecturers on the Silliman Foundation for next year.

DISTRICT OF COLUMBIA

Objections to Medical Student Bill.—The commissioners of the District of Columbia have protested to Senator L. H. Bell, chairman of the district committee in the Senate, against the passage of a bill to amend the law governing the practice of medicine so as to permit students taking the examination to claim credit for study time spent in the office of a physician.

FLORIDA

State Medical Meeting.—The forty-eighth annual convention of the Florida State Medical Association was held at Pensacola, May 10 and 11, under the presidency of Dr. William P. Adamson, Tampa. The following officers were elected for the ensuing year: Dr. S. R. Mallory Kennedy, Pensacola, president; Drs. Leonidas M. Anderson, Lake City, W. Herbert Adams, Jacksonville, and Julius C. Davis, Quincy, vice presidents, and Dr. Graham E. Henson, Jacksonville, secretary (reelected).

IDAHO

New County Physician.—Dr. Richard J. Sutton, Paris, was recently appointed physician of Bear Lake County, in place of Dr. Harry H. King, resigned.

New Coroner.—Dr. Michael E. Core, Reubens, was appointed last month coroner of Lewis county to succeed Dr. John F. Gist, Nezperce, resigned.

New Medical Society.—The Idaho Falls Medical Society was organized last month with Dr. Clifford M. Cline as president, Dr. Harry D. Spencer, vice president, and Dr. Arthur R. Soderquist, secretary-treasurer.

Board of Medical Examiners.—Dr. Frank W. Mitchell, Blackfoot, was recently elected president of the state board of medical examiners, and Dr. Leonard E. Hanson, Wallace, secretary. The other members of the board are Drs. Fred A. Pittenger and James L. Stewart, Boise, and Dr. Floyd G. Wendell, Sandpoint.

ILLINOIS

State Medical Meeting.—The Illinois State Medical Society held its annual meeting at Springfield, May 18 and 19, under the presidency of Dr. William F. Grinstead, Cairo. The following officers were elected for the coming year: president, Dr. Charles E. Humiston, Chicago; president-elect, Dr. Edwin P. Sloan, Bloomington; vice presidents, Drs. Archie W. Barker, Springfield, and Henry J. Way, Chicago; secretary, Dr. Wilbur H. Gilmore, Mount Vernon (reelected), and treasurer, Dr. A. J. Markley, Belvidere (reelected).

Military Surgeons Association.—Although a national organization was formed in 1890, officers to the first permanent state organization were elected, May 15, at Springfield as follows: president, Col. Gustavus M. Blech, Chicago; vice president, Major William McIlwain Thompson; secretary, Capt. Alfred De Roulet, and treasurer, Major James J. McKinley, all of Chicago. The Chicago branch of the association will hold regular monthly meetings. The state association will hold its meetings annually, and at the same place and time that the Illinois State Medical Society holds its annual meeting.

INDIANA

Violation of Harrison Narcotic Law.—It is reported that Dr. Frederick J. Freshley, Evansville, was arrested, April 29, on the charge of violation of the Harrison Narcotic Law. He was indicted recently by the federal grand jury at Indianapolis.

Councilor District Officers.—Dr. Arett C. Arnett, Lafayette, was elected president of the ninth councilor district of the Indiana State Medical Association, at the annual convention at Lafayette, May 12. Dr. George D. Marshall, Kokomo, was elected first vice president; Dr. Frederick A. Tucker, Noblesville, second vice president, and Dr. Aubrey F. Loop, Crawfordsville, secretary-treasurer. Dr. David L. Ross, Indianapolis, president of the state medical association, was the principal speaker at the banquet.

LOUISIANA

Organization of New Medical Society.—A meeting was held recently at Iberia for the purpose of forming the Iberia Parish Medical Society. Dr. Homer J. Dupuy, New Orleans, president of the state medical society, and Dr. F. T. Gouaux, Lockport, councilor of the third congressional district of the state society, addressed the new organization. The officers elected are Dr. George J. Sabatier, New Iberia, president, and Dr. Walter F. Carstens, New Iberia, secretary-treasurer.

MARYLAND

Personal.—Dr. Hugh H. Young, director of the James Buchanan Brady Institute, Johns Hopkins Hospital, will sail, June 25, for Europe. He will go first to Paris to attend a medical meeting and later to London, returning to the United States in August.

Alumni Reunion, University of Maryland.—A reunion of the medical department of the three amalgamated schools in Baltimore—the University of Maryland Medical School, the College of Physicians and Surgeons, and the Baltimore City Medical College, now the University of Maryland—will be held, May 30-31 and June 1, in Baltimore. There will be a business meeting with election of officers at Osler Hall,

Medical Library Building; clinics and demonstrations at the various hospitals, with alumni banquet on the evening of May 31. The commencement exercises at the Lyric Theater, June 1, will close the reunion.

United States Health Service Dispensary to Be Established.—The largest dispensary in the United States for the treatment of disabled soldiers and sailors is to be established in Baltimore, in charge of Dr. Henry A. Smith, who is director of the city office of the United States Public Health Service in Baltimore. The dispensary will be conducted under the United States War Risk Bureau, which has taken over much of the public health service work, and a staff of from fifteen to eighteen physicians, detailed by the Public Health Service to the War Risk Bureau, will be employed. Dr. Smith will move his office to the new headquarters in the Merchants' and Manufacturers' Association Building, and the clinic now conducted by the United States Health Service at Mercy Hospital will be closed. In establishing the dispensary, the War Risk Bureau desires to keep soldiers and sailors out of the hospital unless they absolutely need hospital treatment. The hospital of the Public Health Service at Fort McHenry will be continued. The patients will first go to the dispensary and if they require hospital attention will be sent to Fort McHenry. Patients at Fort McHenry who do not need hospital treatment will become patients at the dispensary. The dispensary also will look after the medical work of the Federal Board for Vocational Training.

MASSACHUSETTS

Personal.—Dr. Carlos Chagas, director of the Institute Oswaldo Cruz, Rio de Janeiro, will give a series of three lectures with lantern slides at the Harvard Medical School, May 26 and 27.

Announcement of Harvard Appointments.—Dr. George S. Derby, Boston, '96, and Alfred C. Redfield, Ph.D., '14, Boston, have been made assistant professors in the medical school, and Dr. Harry C. Solomon, Boston, '14, has been appointed instructor in psychiatry for a three-year term.

Hospital News.—The Somerville Hospital celebrated the twenty-eighth anniversary of the admission of the first patient to the hospital on National Hospital Day.——The Essex County Tuberculosis Hospital, Danvers, erected at a cost of $1,000,000, was opened to receive patients on May 18.

Tuberculosis League.—Dr. Edward O. Otis, Boston, was elected president of the Massachusetts Tuberculosis League, for the third consecutive year, at the annual meeting of the league, held recently in Boston. Dr. Edward S. McSweeney, director of the hygiene department of the New York Telephone Company and New York Stock Exchange, spoke on methods for the eradication of tuberculosis in industry. In connection with the conferences, the pupils of the Prince School presented "A Modern Health Crusader" at the Children's Theater.

MINNESOTA

Personal.—Dr. Carl C. Chatterton has been appointed surgeon-in-chief, Minnesota State Hospital for Crippled Children, St. Paul, to succeed the late Dr. Arthur J. Gillette.

NEW JERSEY

Osteopath Bill Defeated.—Early in April the bill to give osteopaths the unlimited rights to practice medicine and surgery in New Jersey without having to possess the same education and training required of physicians was defeated.

Bergen County Medical Society.—A special meeting of the society was recently held at Hackensack, at which Joseph H. Gunn, executive secretary of the state society, outlined the state society's plan for a campaign to protect the medical interests by legislation or otherwise during the coming year.

NEW MEXICO

Typhus Epidemic.—According to an announcement of the state public health bureau on May 21, there are from thirty to forty cases of typhus among the Navajo Indians, near the Shiprock Agency, and sixteen deaths have already occurred. The deaths of Dr. E. C. Davis and Dr. John C. Graffin, relief workers, are also reported.

NEW YORK

New York City

Personal.—Dr. Walter T. Dannreuther has been promoted from assistant professor to associate professor of gynecology at the New York Post-Graduate Medical School and Hospital.

Health Department Plans to Fight Imported Disease.—Health Commissioner Copeland has asked the board of estimate for an appropriation of $50,000 to be used for the examination of immigrants arriving here and for rat extermination along the water front. The committee considering the request, it is said, will report favorably upon it.

For University in Jerusalem.—Over 800 Jewish physicians assembled at a dinner in the Waldorf-Astoria, May 21, at which Prof. Albert Einstein and Dr. Chaim Weizmann, president of the World Zionist Organization, were guests of honor. It was announced that American Jewish physicians had subscribed $250,000 of the $1,000,000 which the Zionists are trying to raise to build and equip a medical school of the Hebrew University at Jerusalem. Dr. Nathan Ratnoff presided, and among those who made addresses were Dr. Abe M. Hilkowich, Dr. Samuel J. Kopetzky, and Dr. Schmaryah Levin.

Announcement of Medical Appointments at Columbia.—The first appointments to the faculty of Medicine, a unit of the proposed $15,000,000 Columbia University Medical Center, was announced, May 21. They are: Dr. Allen O. Whipple, of the Presbyterian Hospital staff, as professor of surgery and director of the surgical service; Dr. Walter W. Palmer, Johns Hopkins University, as Bard professor of medicine and director of the medical service, and Dr. Herbert B. Wilcox, as Carpentier professor of diseases of children, to succeed Dr. L. Emmet Holt, resigned after twenty years of service. Dean William Darrach announced that the plans for the new medical center contemplate the building up of special institutes, incorporating such hospitals as the Sloan Hospital for Women and the Vanderbilt clinic, and the expansion of research and graduate work. The departments of medicine and surgery will be reorganized, July 1, on the university basis.

County Society Recommends Amendment to Sanitary Code.—At a stated meeting of the Medical Society of New York, held on May 23, resolutions were introduced by Dr. Alfred C. Prentice, New York, calling attention to the fact that by the repeal of the Whitney Act, and the failure of Governor Miller to sign the Fearon-Smith bills (which measures were approved by this society) the state of New York was now without adequate provisions of law for the commitment of drug addicts to proper custody for treatment, or for the prosecution of illicit dealers in narcotics. Magistrates have no legal power because of these facts to hold those drug addicts now in custody and undergoing treatment. The agents in this district have sought aid from the department of health in their efforts to enforce the federal narcotic laws, and the commissioner of health of the city of New York has appointed a committee instructed to draft a suitable amendment to the sanitary code in order to supplement the deficiency in the state law. In view of these facts be it

Resolved, That the Medical Society of the County of New York hereby urges the enactment of such an amendment to the Sanitary Code as shall definitely prohibit any practice of the "ambulatory treatment" of drug addicts (in full conformity with the meaning and intent of the Harrison Law, as more clearly set forth by recent court decisions relating thereto), and shall declare to be unlawful the possession of narcotic drugs with intent to use or to sell for the purposes of addiction; and

That this Society earnestly protests against any attempt to give force of law, through provisions of the Sanitary Code, or otherwise, to those provisions contained in the former Whitney Act, or in the Regulations issued under its authority, relating to the registration of physicians and the issuance of special licenses to prescribe narcotic drugs; to the registration of addicts and the issuing of special permits for their alleged "treatment" by a physician who continues to supply them with narcotic drugs for self-administration; and to the compulsory use of official narcotic prescription blanks in triplicate; the more especially, since the demand for repeal of the Whitney Act was predicated largely upon the annoyance caused by it to physicians in their proper medical practice, and their consequent protest against the imposition of these particular obnoxious and burdensome requirements. And, further,

That a copy of these resolutions, duly executed, be presented to the Commissioner of Health, and to the President of the Board of Magistrates of the City of New York.

The adoption of these resolutions was recommended by the Comitia Minora, sitting as a reference committee, and was adopted by an almost unamimous vote of the society.

OHIO

Chiropractors Not Exempt.—The state supreme court in April rendered a decision that chiropractors must comply with provisions of the medical practice act in order to secure licenses to practice in Ohio. This reverses the action of the common pleas court which declared certain provisions of the medical practice act unconstitutional.

OKLAHOMA

State Medical Meeting.—The Oklahoma State Medical Association held its annual meeting, May 17-19, at McAlester,

under the presidency of George A. Boyle, Enid. The following officers were elected for the ensuing year: president, Dr. McLain Rogers, Clinton; vice presidents, Drs. John A. Walkers, Shawnee, Jesse C. Best, Ardmore, and Loyal B. Torrance, Okmulgee; secretary-treasurer, Dr. Claude A. Thompson, Muskogee. Oklahoma City was selected for the next place of meeting.

PENNSYLVANIA

Personal.—Dr. Robert T. Miller, head of the department of surgery, school of medicine, University of Pittsburgh, resigned, June 1.

Tuberculosis Hospitals.—The bill, passed by the Pennsylvania legislature, authorizing counties to establish and maintain hospitals for the treatment of persons afflicted with tuberculosis has been approved by Governor Sproul.

Philadelphia

Conviction for Failure to Report Narcotics Prescribed.—It is reported that Dr. John G. Dougherty will have to serve a sentence of two years in prison imposed by Judge Stern last December, both the supreme and superior courts having decided against him.

Unveiled Tablet.—A tablet erected to the memory of Dr. John D. Heist, a martyr in the cause of humanity, was unveiled in the Jewish Hospital, May 30. The tablet was officially presented to the hospital by Dr. Myer Solis-Cohen, director of the Jules E. Mastbaum research laboratory of the Jewish Hospital. A tribute to the memory of Dr. Heist was paid by Dr. John A. Kolmer, of the graduate school of medicine of the university.

Women to Study Teeth Hygiene.—At the request of the state department of health, the University of Pennsylvania Dental School will open a school for the training of dental hygienists in September, the first class to be limited to fifty women. The purpose is to train women to serve as teachers in schools, hospitals and private dental offices and to make them capable of thoroughly cleansing the mouth and teeth and discovering the need of expert dental attention among children or parents.

Jefferson Commencement.—The ninety-sixth annual commencement of Jefferson Medical College was held Saturday, June 4, in the American Academy of Music. The valedictory address was delivered by Rev. Samuel Charles Black, D.D., L.L.D., president of Washington and Jefferson College. Hon. William Potter, president of Jefferson Medical College, will deliver the valedictory address at the commencement exercises of Washington and Jefferson College at Canonsburg, and will receive the degree of Doctor of Law. Jefferson Medical College came into being in 1825 as the medical branch in Philadelphia of the Jefferson College at Canonsburg, and it was not until 1837 that Jefferson Medical College became an independent institution.

SOUTH CAROLINA

Appointment of Health Committee.—The governor has appointed the following members of the executive committee of the state board of health: Dr. Robert Wilson, Jr., Charleston; Dr. William M. Lester, Columbia; Dr. Robert A. Marsh, Edgefield; Dr. Claude C. Gambrell, Abbeville; Dr. William Egleston, Hartsville; Dr. Edgar A. Hines, Seneca; Dr. Miles J. Walker, York.

SOUTH DAKOTA

State Medical Meeting.—The annual meeting of the South Dakota State Medical Association was held, May 24-26, at Aberdeen, under the presidency of Dr. Harry T. Kenney, Pierre. The following officers were elected for the ensuing year: president, Dr. George S. Adams, Yankton; vice presidents, Drs. Gilbert G. Cottam, Sioux Falls, Francis E. Clough, Lead, and Robert L. Murdy, Aberdeen; secretary-treasurer, Dr. Frederick A. Spafford, Flandreau. The constitution and by-laws were amended by adopting, with a few changes to meet the local needs, the constitution and by-laws recommended by the American Medical Association. The next meeting will be held in May, 1922, at Huron.

TENNESSEE

Personal.—Dr. Eugene M. Holder, Memphis, has been elected chief of the division of surgery of the Tennessee College of Medicine, to succeed Dr. McIver Woody, Memphis, resigned.

WASHINGTON

Personal.—Dr. John B. Anderson, Seattle, for three years state commissioner of health, has been appointed surgeon in the U. S. Public Health Service with the rank of major.

WEST VIRGINIA

Birth Registration.—The state legislature has recently passed a law making compulsory the registration of births and deaths.

New Health Commissioner. — Governor Morgan has appointed Dr. William T. Henshaw, Martinsburg, as state health commissioner.

Practice Act Amended.—The medical practice law of West Virginia has been amended, requiring that hereafter only graduates of Class A medical schools shall be granted licenses to practice medicine in the state and then only when the college requires for admission at least two years of premedical work in a college of arts and sciences equal in rank to the college of arts and sciences of the University of West Virginia. It is stated that the same requirement will apply to those practicing any form or methods of treatment.

WISCONSIN

Illegal Practitioner Fined.—It is reported that, early in May, Theodore F. Whipple, a masseur of Milwaukee, was fined $100 and costs for practicing medicine without a license.

CANADA

Personal.—Dr. George D. Porter, Toronto, for many years secretary of the Canadian Association for the Prevention of Consumption, has resigned and has been succeeded by Dr. Robert E. Wodelhouse, O.B.E. Dr. Wodelhouse was formerly situated at Port Arthur but has lately resided in Toronto.

Relation of the Physician to the Ontario Temperance Act.—A questionnaire has been submitted to the members of the Ontario Medical Association, and its outcome will be awaited with interest. On that outcome will depend the decision of the organized medical profession as to what attitude they will take on prescribing liquor in Ontario.

Canadian Physique Drops.—Hon. Dr. William F. Roberts, St. John, N. B., minister of health for the province of New Brunswick, has been chosen president of the Canadian Public Health Association, which recently met in Toronto. At the annual meeting of this organization the statement was made that the people of Canada were heading downward in physical strength and health, as 75 per cent. of the children in the public schools were suffering from some minor ailment.

Tuberculosis Among Ex-Service Men.—According to the recent report of the board of tuberculous consultants, appointed by the Canadian Department of Soldiers' Civil Reestablishment to investigate all the sanatoriums throughout Canada where ex-service men are being treated, it is estimated that there has been twice as much tuberculosis among the ex-service men as among civilians of the same age period (20-44). One of the real benefits of the war has been the great increase in sanatorium capacity. Not only have accommodations been more than doubled, but all institutions enjoying federal assistance are more highly efficient because of improved equipment as well as enlargement. The board believes that the government has done a great constructive work in behalf of the tuberculous ex-service men, in a broad and sympathetic manner, and that a real and needed stimulus has been given to all antituberculosis work in Canada.

GENERAL

National Tuberculosis Meeting.—The annual meeting of the National Tuberculosis Association will be held, June 14-17, in New York, under the presidency of Dr. Gerald B. Webb, Colorado Springs, Colo.

Bill to Permit Tax Exemption for Medical Expense.—The man whose net income does not exceed $5,000 will be allowed income tax deduction up to $1,000 for medical, hospital and funeral expense under a bill introduced by Representative Rosenbloom of West Virginia.

American Association of Pathologists and Bacteriologists.—At the annual meeting of the association held in Cleveland, March 24, the following officers were elected for the year: president, Dr. Harry T. Marshall, University of Virginia; vice president, Dr. Paul A. Lewis, Philadelphia; secretary, Dr. Howard T. Karsner, Cleveland, and treasurer, Frank B. Mallery. It was voted to hold the next annual meeting in

connection with Tercennial Congress of America Physicians and Surgeons, in Washington, D. C., during May, 1922.

Colored Physicians Adopt Resolution on Volstead Act.—The National Medical Association, composed of 2,000 colored physicians, dentists and pharmacists, through its president, Dr. John P. Turner, Philadelphia, has addressed a letter to Mr. Volstead assuring him that the association is in thorough accord with the prohibition amendment and the laws of its enforcement, and stating that the organization does not feel that there should be any modification in the regulations for dispensing liquors.

Research Information Service.—The National Research Council announces that it is prepared to assist investigators by locating scientific publications which are not generally or readily accessible. It will also, if desired, have manuscripts, printed matter or illustrations copied by photostat or typewriter. Requests for assistance and information regarding expense of copying should be addressed, National Research Council, Information Service, 1701 Massachusetts Avenue, Washington, D. C.

Bill to Prevent Misbranding.—Senator Lodge of Massachusetts has introduced a bill to protect the public against misbranded, misrepresented or falsely described goods, wares and merchandise. The bill prohibits such articles from interstate commerce; it defines an article to be misbranded which is offered for sale under the name of another article; or, if the contents of the original package are removed and other contents placed therein; or, if the contents are stated in terms of weight or measure not correctly printed on the outside; or, if there is published in any newspaper, circular or other advertising any false, fraudulent or deceptive words. Medicines and drugs are not specifically mentioned in the bill, but it is drawn in such a manner that such articles may be included within the meaning of the proposed legislation.

Hearings on Public Welfare Bill.—The Joint Committee of Senate and House which has been holding hearings on the legislation to create the Department of Public Welfare has concluded the work of taking testimony. It is understood that members of the committee will confer with President Harding before any definite legislation is recommended, for it is the wish of Chairman Kenyon and others to draft this measure in a form satisfactory to the President. An important provision of the bill which is in controversy, is whether or not the Bureau of Education shall be included in the proposed department of Public Welfare. Advocates of the so-called Smith-Towner Educational Bill earnestly urge the creation of a separate department of education and protest against including it as a subordinate bureau of any other department.

A Model Health Department Makes Report.—A model health department has been established in the 516-acre government reservation at Perryville, Md., by the U. S. Public Health Service. The first annual report shows that the death rate was only 3.67 per cent. Careful work has kept the record of communicable disease low. Only three cases of diphtheria occurred during the year and this low prevalence of contagious disease is ascribed directly to close watch and prompt isolation, laboratory diagnosis, and prophylaxis, and also to pasteurized milk, filtered and chlorinated water, school medical supervision. A physical examination of the children showed that 93.5 per cent. had physical defects of teeth, tonsils, adenoids, eyes and hearing. Between 1919 and 1920 the percentage of underweight children was reduced from 42.7 to 13.8 per cent. This reservation was formerly a government nitrate plant and was turned over to the U. S. Public Health Service by Congress after the war. The buildings were transferred into a model village, there being now 200 cottages, two general stores, a model schoolhouse, club, firehouse and theater for the employees. It also contains a hospital caring for 430 patients.

Report on Bill Covering Veterans' Bureau.—The Sweet bill providing for the consolidation of all government activities dealing with former soldiers and sailors into the "Veterans' Bureau" has been reported favorably to the House by the Interstate Commerce Committee. The measure provides for the appointment of assistant secretary of the treasury with a salary of $10,000 per year. The functions of the Public Health Service, dealing with the ex-service men, of the Bureau of War Risk Insurance and the duties of the Federal Board of Vocational Training would be combined in this new Bureau. The measure also provides that there shall be a central office in Washington with fourteen regional offices and fifty suboffices throughout the country. The fourteen regional offices, through the terms of the proposed act, may exercise full powers in hearing complaints of former war veterans, of making physical examination, rate and award compensation claims, grant medical, dental, surgical and hospital care, make insurance awards and grant vocational training. An important feature of the bill is a section which would empower every postoffice in the country to receive payments on insurance policies held by war veterans.

Bequests and Donations.—The following bequests and donations have recently been announced:

Palo Alto (Calif.) Base Hospital, $500, the proceeds of a military ball given by San Francisco Chapter of the Military Order of the World War.

Clinton (Mass.) Hospital, instruments, supplies and medical books valued at $500, by the will of Dr. Chester C. Beckley, Lancaster, Mass.

New Orleans Hospital and Dispensary for Women and Children, $2,500, by the will of Dr. William Kohlmann, New Orleans.

Children's Free Hospital, Detroit, and Walkerville, Ont., toward the building of a general hospital, each $25,000; Harper Hospital, Detroit, $10,000, by the will of J. H. Walker, Detroit.

York (Pa.) Hospital, the remainder of his estate following a list of bequests, estimated to be between $150,000 and $200,000, to be used entirely for the erection of a new hospital and for the construction of a nurses' home as a memorial to his mother, Catherine A. Dale, by the will of Dr. James A. Dale, York.

Lankenau Hospital and Children's Homeopathic Hospital, Philadelphia, each $5,000, by the will of Alfred E. Burk, Philadelphia.

Germantown Dispensary and Hospital, $100,000, as an addition to the endowment fund of the institution in memory of the testator's parents, to be known as the "William G. and Sarah W. Warden Endowment Fund," by the will of Mrs. William L. McLean, Philadelphia.

Mount Sinai Hospital, New York, $10,000 Hebrew Orphan Asylum, $5,000; St. John's Guild, $3,000; Hospital for Deformities and Joint Diseases, Society for the Relief of Ruptured and Crippled, Manhattan Eye, Ear and Throat Hospital, Bellevue Hospital, Montefiore Home for its sanatorium at Bedford, each $2,500; Henry Street Settlement, New York, and Monmouth Memorial Hospital, Long Branch, N. J., by the will of Mrs. Julia Seligman.

Newton Hospital, Boston, $10,000; Perkins Institute for the Blind, and Floating Hospital, Boston, each 1,000, by the will of Fanny Coburn, Boston.

Medford, Mass., $200,000, for the construction of a hospital, by the will of Daniel W. Lawrence, Medford, Mass.

LATIN AMERICA

Sanitation of Colombian Ports.—The congress of Colombia has made appropriations amounting to 500,000 pesos for the sanitation of the ports of Barranquilla, Cartagena and Buenaventura. A contract has also been made for sanitary work at Puerto Colombia.

New Hospitals at Rio.—The new detention hospital in connection with the House of Correction at Rio was recently inaugurated; Dr. A. Pinto, minister of the interior, presided. A sectarian asylum has also recently been transformed into a hospital, with capacity for 500 beds. The new wards will be ready in five months it is anticipated.

The Child Welfare Congress in Brazil.—The First Brazilian Child Welfare Congress is to convene at Rio de Janeiro Sept. 7, 1921, and the *Brazil-Medico* states that already 2,354 members have been enrolled, and it gives a long list of communications to be presented. One of them is entitled "Let Us Mineralize the Teeth," by Dr. Pio M. de Paula Ramós.

Election of Officers.—The Sociedad de Cirugía of Buenos Aires recently elected officers for the current year with Dr. E. Beláustegui, president; Dr. Enrique Finochietto, vice president; Dr. J. M. Jorge, secretary general; Dr. M. Ruiz Moreno, recording secretary; Dr. A. J. Bengolea, director of the *Review;* Dr. M. Viñas, treasurer, and Drs. D. J. Cranwell and O. Copello, members of the board.

Panama Purchases Gorgas' Bust.—The government of Panama has purchased a bronze bust of Gorgas, which will be placed at the entrance of the Santo Tomás Hospital at Panama. President Porras of Panama, in writing to the English sculptor in charge of the work, P. Bryant Baker, has stated, "We appreciate very deeply the sanitary work accomplished by Dr. Gorgas in Panama and feel this is one of the most appropriate ways of showing our gratitude."

Tuberculosis Sanatorium in Brazil.—In order to select a location for the founding of a tuberculosis sanatorium and a hospital for convalescent patients, the following commission has been appointed: Generals Drs. A. F. do Amaral and J. de Araujo Aragao Bulcao, Majors Drs. M. de Marsillac Motta and C. E. Guimaraes, First Lieutenants Drs. P. Barcellos and A. Notari. Several locations have already been visited by this commission.

International Congress of Ophthalmology.—A special invitation has been sent to Latin American physicians to participate in the International Congress of Ophthalmology which will be held in Washington, D. C., April 25-28, 1922. Two prominent Latin-American ophthalmologists, Dr. M. Uribe Troncoso of Mexico and F. M. Fernández of Habana, have been appointed to fill places in the general organizing committee and the committee on scientific material. Spanish will be one of the three official languages of the congress.

Congresses in Uruguay.—The Second South American Congress of Dermatology and Syphilology and the Third

South American Congress on Hygiene, Microbiology and Pathology will meet in Montevideo in October, 1921. The organizing committee of the former consists of the following: Drs. J. Brito Foresti, J. A. Rodríguez, A. Penco, J. May, M. Halty, B. Vignale, H. Del Campo and P. R. Alonso; and of the second of Drs. A. Vidal y Fuentes, E. Fernández Espiro, A. Berta, E. Claveaux, J. F. González, C. Brito Foresti, A. Gaminara and A. F. Puyol. At the same time there will be held the Second National Medical Congress which will be presided over by Dr. B. Etchepare. The Uruguayan Congress has allowed 12,000 pesos for this work.

Personal.—During the absence in North America of the chief of the National Public Health Service in Brazil, Dr. Carlos Chagas, the service is in charge of Dr. Leitão da Cunha, and the Instituto Oswaldo Cruz is in charge of Dr. Adolfo Lutz.——Dr. J. Lefèvre is in Brazil on a mission in behalf of the Museum of Natural History of Paris.——Dr. Isabel K. de Berchmann of Buenos Aires has been decorated with the medal of the Order of Queen Elizabeth in appreciation of her work on behalf of orphans in Belgium.——Dr. P. Barbosa has just returned to Brazil from the United States where he studied ways and means to combat tuberculosis.——Dr. F. J. Medina, a surgeon of Mexico City, is now in this country visiting clinics at Chicago, Philadelphia, New York and Rochester.

FOREIGN

Tribute to Sormani.—The Institute of Hygiene at the University of Pavia was the scene recently of the placing of a tablet to record the devoted services of its founder and director until reaching the age limit last year, Prof. G. Sormani. He is now 77.

Graduate Courses at Naples.—Practical two or three months postgraduate courses in pediatrics, obstetrics and gynecology and in otolaryngology have been organized at Naples for this summer. The fees for each course are between 200 and 300 liras; with exchange normal, this would be $40 to $60.

Tribute to Prof. Swaen.—The friends and former students of Prof. A. Swaen are planning to place a tablet in his honor on the Institute of Anatomy at the University of Liége where he has taught for thirty years. Those subscribing 25 francs will receive a bronze replica of the tablet. Address J. Duesberg, 22, Quai Mativa, Liége, Belgium.

French Medical Congress.—The internists of France and other French-speaking countries are to meet at Strasbourg, Oct. 3-5, 1921, for the twenty-fifth Congrès de Médecine. Three topics have been appointed for discussion: glycemia, antianaphylaxis, and the anatomic and functional adaptability of the heart in pathologic conditions in the circulation.

Prize for Detection of Errors.—The late Prof. A. Cavazzani of Pisa left his property to the University to found a perpetual prize to be awarded for the best work in the line of detecting errors and unmasking fraud in the field of the medical sciences or even in allied disciplines. The purpose of the foundation is to aid in promoting high grade scientific production in Italy.

Medical Radiator Caps.—The *Vie Médicale* is opening a competition for radiator caps for physicians' automobiles. In a recent issue it reproduces some of the art caps sent in for the competitive tests of the journal *Auto*. They are artistic, but not medical emblems. The address of the *Vie Médicale* is 49 rue Geoffroy-St. Hilaire, Paris, but the conditions of the competition have not yet been announced.

Professor Henderson at Bordeaux. — Our Bordeaux exchanges are praising the lectures delivered at the university by Prof. L. J. Henderson of Harvard, who spoke in French. His three lectures were on biologic chemistry, and he explained how the latest biochemical research on the blood has confirmed the ideas announced by Claude Bernard over half a century ago on the physicochemical nature of vital phenomena.

International Child Welfare.—The creation of a permanent international organization devoted to the interests of child welfare is one of the objects of the Second International Conference of Child Welfare, which has been called by the Belgian government to meet in Brussels, July 18-21. Belgian and foreign experts have been asked to prepare reports on work carried out in their several countries for the protection of children. America has been invited to participate in the conference.

New Unit of Royal Free Hospital.—The unit of obstetrics and gynecology recently established at the Royal Free Hospital, London, was formally opened, May 11, by the queen. It is the first unit in these subjects to be established in London. Dr. Annie Louise McIlroy, formerly senior assistant to the Muirhead professor of obstetrics and gynecology in the University of Glasgow, Scotland, has been made director. Her assistants are Drs. Gertrude Dearnley, and Dr. Charlotte L. Houlton.

Convalescent Home for Women and Babies.—To help the wives of professional and business men, who find it difficult to get suitable and reasonable accommodation, a cottage at Farnham, England, which was formerly the home of Sir James Barrie, has been adapted as a convalescent home for six recently confined mothers and babies. The cottage is well furnished, with an experienced matron in charge, a nursery nurse and an adequate domestic staff. Mothers are received only on a physician's recommendation and can remain from one to four weeks.

Netherlands League for Mental Hygiene.—A society for this purpose was organized at Amsterdam early in 1919 for the scientific study of the treatment of nervous and mental diseases, especially by experimental research on the pathology and therapeutics of nerve and brain diseases. One of the aims of the society is to get in touch with all other organizations for similar purposes in other countries. The society publishes a journal, *Neurotherapia*. The leading neurologists and alienists of the Netherlands are charter members of the society, including Profs. S. van Leeuwen, Wertheim-Salomonsen, Jelgersma and Ariens Kappers.

British Medical Association.—The annual meeting of the British Medical Association will be held, July 15-23, at Newcastle-Upon-Tyne, under the presidency of Prof. David Drummond. On the occasion of the president's address, July 19, the gold medal of the association will be presented to Sir Dawson Williams, editor of the *British Medical Journal* since 1898, in recognition of his distinguished services to the association and the medical profession. Sir William Macewen, regius professor of surgery in the University of Glasgow, is announced as president-elect in connection with the 1922 meeting, which will be held at Glasgow. The council of the association has recommended that the 1923 meeting be held at Portsmouth.

Spanish Week at Paris.—A party of twenty-three physicians from the Barcelona district, the extreme northeast of Spain, recently spent a week at Paris, delegates from a newly organized local society formed to promote postgraduate work in France. This is the third delegation that has been sent to Paris by the society, and they were fêted by the profession in Paris and special demonstrations made for them in the hospitals, etc. The society was instrumental in having three Paris physicians deliver lectures in Barcelona in March, Profs. J. L. Faure, Broca and L. Bernard. A banquet was tendered the Spanish delegation by the Association at Paris for Development of Medical Relations with the countries of the Allies and their friends. This latter organization, the A. D. R. M. as it is called, is in charge of Professor Hartmann.

China's First Minister of Public Health.—Dr. S. M. Woo, who left Shanghai in January to organize a department of health under the Canton local government, was soon after his arrival also appointed minister of public health under the southern government. Dr. Woo, after graduating from St. John's University, finished a medical course at Johns Hopkins University and a course in public health at Harvard-Massachusetts Institute of Technology. While still in America he was engaged by the China Medical Missionary Association and the National Medical Association to return to China as secretary of the Council on Health Education, in which capacity he served from July, 1917, until 1921.

Public Health Work in Samoa.—The New Zealand government has published the regulations under the "health act" providing for a department of public health in western Samoa. The board will consist of the administrator of Samoa; the chief medical officer, who is to be the official head of the department and whose duties will include the control of the division of clinical medicine and the division of hospitals; the medical officer of health, who will have charge of the preventive and sanitary activities of the board, and the engineer in charge of public works. In addition to the usual functions of a health department, the board will investigate causation and possible prevention of tropical and other diseases. The government has decided to erect modern research laboratories in Apia and has appointed, as pathologist to the government, Dr. Francis W. O'Connor, who some time ago was commissioned by the London School of Tropical Medicine to investigate the disease filariasis in the Gilbert and Ellia Islands and elsewhere in the Pacific. The staff will

further include a resident medical officer at the public hospital at Apia. There will also be a secretary of the board, a hospital steward, native sanitary inspectors and such others as the board may find necessary.

Deaths in Other Countries

Dr. **Dario Ribeiro** of Rio de Janeiro, physician to the Hospital S. Sebastião and to the Anti-Tuberculosis League.—— Dr. **Libotte,** a roentgenologist and electrologist at Brussels. ——Dr. **A. Morselli,** at Bologna, aged 77.

Government Services

Public Health Service Establishes New Hospitals

Nine new hospitals, which will accommodate more than 3,000 additional patients, are now being put into shape by the U. S. Public Health Service. Three of these, in Iowa, Montana and Oregon, with a capacity of about 500 patients will be in full operation within two months. The Colfax hotel at Colfax, Iowa, a leased building with 130 acres of grounds, is being fitted to receive 200 patients. The Army hospital at Fort William Henry Harrison, near Helena, Mont., will be opened with 100 general patients. The Hahnemann Hospital at Portland, Ore., will provide for 164 general patients and the Speedway Hospital at Chicago will be improved so as to accommodate 1,000 patients by August 1. Three army hospitals have also been turned over to the U. S. Public Health Service. They are located at Fort Walla Walla, Wash., Fort McKenzie, Wyo., and Fort Logan H. Root, Little Rock, Ark. A naval hospital at Gulfport, Miss., has just been taken over by the Public Health Service from the Navy.

Army Medical School Graduation

Closing exercises for the Army Medical School were held at the National Museum in Washington with an elaborate program at which Secretary of War John W. Weeks presented the diplomas to the sixty-five graduates. Surg.-Gen. Merritte W. Ireland also took part in the ceremonies presenting the Hoff memorial medal to Major Albro L. Parsons, Medical Corps. The Sternberg medal was presented by Brig.-Gen. Walter D. McCaw to Capt. Virgil H. Cornell, Medical Corps. The Slee medal was presented by Col. Richard Slee to Capt. Philip P. Green, Medical Corps. The honor graduates of this class of 1920-1921 follows:

Major A. J. Dabney, Kentucky.
Major A. L. Parsons, Kentucky.
Major D. M. Roberts, Ohio.
Capt. J. B. Anderson, Virginia.
Capt. S. D. Avery, Missouri.
Capt. A. F. Ballester, Cuban Army, Cuba.
Capt. J. H. Blackwell, Alabama.
Capt. V. H. Cornell, New Jersey.
Capt. R. E. Curti, Nebraska.
Capt. G. B. Denit, Virginia.
Capt. P. P. Green, Missouri.
Capt. M. R. Johnston, Missouri.
Capt. H. W. Mahon, New York.
Lieut. E. A. Casserly, Indiana.
Lieut. A. Mordecai, No. Carolina.

The other graduates not included in the honor class are as follows:

Major H. C. Bradford, Virginia.
Major G. A. Klock, Florida.
Major J. B. Latta, New York.
Major J. E. Phillips, Arkansas.
Major C. W. Sale, Virginia.
Major E. E. Whittemore, New York.
Major F. E. Winter, California.
Capt. R. F. Annis, Mississippi.
Capt. J. H. Ashcraft, Alabama.
Capt. W. R. Beardsley, Michigan.
Capt. M. C. Berry, Arkansas.
Capt. D. R. Blakely, S. Carolina.
Capt. R. B. Bretz, Indiana.
Capt. J. U. Cazorla, Peruvian Army, Peru.
Capt. W. E. M. Devers, Oregon.
Capt. C. E. Dovell, Virginia.
Capt. M. B. Dunning, Iowa.
Capt. M. A. Farlow, Indiana.
Capt. B. F. Fridge, Jr., Louisiana.
Capt. J. W. Garrett, Oklahoma.
Capt. A. J. Greco, New York.
Capt. G. D. Griggs, Kentucky.
Capt. H. W. S. Hayes, New York.
Capt. W. E. Huddleston, Texas.
Capt. M. G. Keeler, Connecticut.
Capt. I. K. Lovett, New Jersey.
Capt. W. W. McCaw, Pennsylvania.
Capt. W. E. McCormack, Kentucky.
Capt. P. S. Madigan, D. C.
Capt. W. D. Middleton, Iowa.
Capt. O. P. Mueller, Kansas.
Capt. E. S. Murphy, Minnesota.
Capt. M. J. Myres, New York.
Capt. T. W. O'Brien, Delaware.
Capt. C. P. Prince, Kentucky.
Capt. J. A. Rogers, New Hampshire.
Capt. C. A. Stammel, Ohio.
Capt. F. O. Stone, Tennessee.
Capt. E. H. Tonolla, New York.
Capt. T. G. Tousey, New York.
Capt. C. L. Vanderboget, Washington.
Capt. L. F. Wright, Georgia.
Capt. C. A. Zevallos, Peruvian Army, Peru.
Lieut. J. F. Brooke, Missouri.
Lieut. H. M. Bullard, Pennsylvania.
Lieut. W. F. Hamilton, Alabama.
Lieut. H. W. Kinderman, West Virginia.
Lieut. R. E. Murrell, Missouri.
Lieut. G. E. Rehberger, Maryland.

The commandant of the Army Medical School is Brig.-Gen. Walter D. McCaw, assistant surgeon-general of the Army. The faculty consists of eighteen specialists of the Army Medical Corps.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 2, 1921.

Civilization as a Cause of Race Deterioration

In a lecture at the Eugenic Society, Mr. F. C. S. Schiller, D.Sc., said that civilization was an achievement of man and not a congenital quality like, for instance, sex. A baby had to acquire civilization by training, and if subsequently the individual liked civilization, it was an acquired taste. The transmission of civilization in the social order was effected in very complex ways; and were the mechanism of this transmission to be destroyed or seriously damaged, civilization would disappear in one generation, as would probably be the case in Russia. It was often regarded as a fatal objection to eugenics that what would be the best type of man was not known, and therefore could not be produced. Though there was truth in this objection, a knowledge of what was good was equally involved in the notions of progress and of civilization. The eugenist at least knew enough to deplore the suicidal organization of our present civilization, which was arranged so as to eliminate not only the qualities which were good but even those thought to be good, and so was ruining the human race. The reason was that in all civilized societies the birth rate was relatively high in the lower social strata, and so low in the higher that it had to be recruited from the lower. As social promotion was everywhere the reward of merit—of the qualities a society valued and regarded as good—and as social structure was now less rigid than in the past, merit rose more easily than formerly. This promotion, however, meant inclusion in a class in which the numbers were halved in each generation. This recognition of merit was biologically its capital punishment. Civilization was actually extirpating the very qualities it considered valuable. The organization of society at the present moment was appallingly dysgenic; it had become an instrument of deterioration of the race, and if progress was still being made it was being made in the mechanism by which the world was controlled, which was quite independent of what was good. This dysgenic effect of civilization was no new thing, though it was now probably proceeding faster than formerly; it explained why aristocracies always died out, why the physical development of the human race had been arrested, and why there was no reason to think that modern races were mentally superior to the ancients. Militarism tended to eliminate itself. All through history the fighting races had fought themselves to extinction, and all through history the meek had inherited the earth. There had been going on in every community an internal selection which might profoundly change the ideas and type of the people.

The bodily development of man had long ago come to a standstill. There had been no improvement in the human type since the beginning of history, nor was there reason to think that man was more intelligent. Brain development had apparently been retrogressive for a long time, and it was a mere assumption that we use smaller and more compact brains more efficiently. The only power which man had developed was a resistance to microbic disease. It was a mistake to think that intelligence was not an important factor in savage life. The savage could not afford to be a fool or to breed fools, and in the ordinary affairs of life he was far more capable of fending for himself than those who disparaged him. Nor was he more helpless in the city of London than a bank clerk on a primitive island, or a professor in a jungle. In savage life the fool and the idiot could not grow up. The human stock must at one time have been progressive, or else it would never have developed out of the ape. It was still

progressive wherever social conditions conduced to a preferential survival of the better portions of the stock. This occurred among savages subjected to severe natural selection so that weaklings could not be preserved. This also occurred among barbarians where the well born were more prolific than the lower classes. It could occur in civilized societies if they recognized the error of their ways and the need of thoroughgoing eugenic reform. The recognition of the race deteriorating tendency of civilization was a new important fact; but, once recognized, it could be counteracted by a variety of expedients, which, though difficult, were not impracticable.

Scientific Terminology

The Medical Research Council has issued a useful pamphlet entitled "Notes upon the Preparation of Monographs and Reports for Publication," which contains many rules which are often disregarded by medical writers: "The decimal point should never be placed at the beginning of a number, as when so placed it may well be overlooked by the compositor; for example, the form 0.5 should be used, not .5." The scientific names of animals and plants are formed according to the binomial or Linnaean system, for the use of which international rules exist and should be followed. The specific name must be written with a small initial letter; thus, *Bacillus typhosus*, not *Bacillus Typhosus;* further, "Specific names should not be employed alone, but should always be preceded by the full name or initial capital letter of the genus to which they belong; for example, write *Bacillus coli* or *B. coli*, not *coli*." In zoological nomenclature, specific names should be written with a small initial letter, even when formed from names of persons or places; thus, *Trypanosoma brucei*, not *Trypanosoma Brucei*. The specific names of micro-organisms should be written with a small initial letter; for example *B. welchii*, not *B. Welchii*. "Generic names are frequently used as common English nouns denoting classes. In such cases the name should be written in roman and not italic type, without an initial capital; for example, 'large numbers of bacilli and amoebae were found in the specimen,' not '. . . of Bacilli and Amoebae . . .' (the latter statement would mean that many different species belonging to the genera Bacillus and Amoeba were found)."

Hospital for Functional Nervous Disorders

A hospital of a new type—for functional nervous disorders—has been founded by Sir Ernest Cassel, who has provided the munificent donation of $1,125,000 for the purpose. A mansion and park have been purchased at Penhurst (in Kent) and the house has been reconstructed to provide for sixty patients. It is primarily intended for educated persons unable to meet expenses of a nursing home. The conditions to be treated are neurasthenia and other nervous conditions not associated with structural changes in the nervous system. The medical committee of the hospital includes Dr. Farquhar Buzzard, Lord Dawson, Prof. J. S. Haldane, Dr. Henry Head, Dr. A. F. Hurst and Sir Frederick Treves.

Production of Surgical Catgut at the London Hospital

After nearly a year's investigation, there has been produced at the London Hospital a surgical catgut which is claimed to be perfectly sterile. It is now produced in quantity beyond the hospital's needs, and a departure, which is entirely new in hospital policy in this country, has been made. The catgut has been placed on the market. The intestines of sheep which have been killed a few hours before are brought to a department in the hospital, where they are cleansed by women. They are passed to a worker who, with a special knife, slits the gut into three strips, of which the mesenteric is rejected. Then all fat and adhesive matter are scraped away. In another room each strip is throughly sterilized and then twisted on a loom to make the different thicknesses required for surgical work. The gut is then hardened. The finished article is packed in lengths of 5 feet in air-tight glass tubes containing an antiseptic. During the manufacture, lengths are produced which are not of the regulation size, 5 feet, but are capable of use. It was decided that these should not be wasted but sold attached to a needle. One of the surgeons, Mr. H. S. Souttar, has invented a special needle, which has the advantage of being without an eye. Instead, there is a hollow in which the end of the thread is inserted and then sealed in the needle. Thus, suturing can be performed with a single thread—an advantage which surgeons have long desired.

PARIS

(From Our Regular Correspondent)

April 29, 1921.

Erection of Monument in Memory of the Interns Who Died for France

The monument erected to the memory of the hospital interns of Paris who died in the service of France was dedicated, Sunday, April 24, 1921, at the Hôtel-Dieu. The ceremony was presided over by Monsieur Léon Bérard, minister of public instruction, assisted by Dr. Louis Mourier, director of public charities. Dr. Walther, president of the Association amicale des internes et anciens internes des hôpitaux de Paris, who collected by subscription the funds for the erection of the monument, presented it to the bureau of public charities.

The Medical School at Hanoi

A fully equipped medical school has been established at Hanoi, the capital of French Indo-China, in place of the preparatory school which has existed heretofore. At present it has 150 students in attendance. Under the direction of Dr. Yersin, the scientist to whom we owe the discovery of the plague bacillus, this school has grown and developed, but has long been inadequate to meet the needs of the situation. A secondary school has been established at Hanoi, in which the young citizens of Anam can obtain a bachelor's degree. Equipped with such preparation, they are admitted to the Medical School of Hanoi which has just been created. Here, just like students in France, they will take a year's preparatory training in physics, chemistry and the natural sciences. They will then pursue a regular five-year medical course, following which they will come to France and spend a year in the Medical School of the University of Paris. Here they will complete their clinical instruction and their laboratory work, taking some special courses in the Institut de médecine coloniale. They will thus become thoroughly familiar with French doctrines and methods, and, after having passed their finals at Paris and defended a thesis, they will return home, where they will be entitled to practice without restrictions the profession of their choice.

Paris' Supply of Spring and River Water

The *Economiste Français* recently published some interesting items of information on the water supply of Paris. The spring water, or possibly we might better say, the water from brooks and springs, is furnished by the Vanne, the Dhuis, the Avre, the Loing and the Lunain. The quality of these waters is controlled, from the standpoint of their bacterial content, first, by laboratories located at the points of intake, and secondly, before entering the Paris mains. The daily consumption amounts to 400,000 cubic meters ordinarily, but occasionally exceeds 500,000 and even 550,000 cubic meters. The springs or brooks furnish only 384,000 cubic meters at the most, and in time of drought only 265,000 cubic meters. To make up for the shortage in the supply of spring water, filtering establishments have been located on the Marne—one at Ivry-sur-Seine and another at Saint-Maur—which furnish 200,000 cubic meters, but the endeavor is being made to

increase the supply of filtered water by 100,000 cubic meters. By 1923 or thereabouts the waters of the Voulzie, the Durteint and the Dragon will add 80,000 cubic meters to the present supply. But the 600,000 or 700,000 cubic meters now in sight, as it were, will, it is feared, no longer suffice, and it will doubtless be necessary to draw on the waters of the valley of the Loire, which will entail a very heavy expense. From the financial standpoint, the distribution of water was accomplished in 1913 at a figure which yielded a profit of 7,000,000 francs, but since 1915 there has been a deficit each year of more than 2,000,000 francs. In 1919 the deficit amounted to 18,000,000 francs and it is estimated that the deficit for 1921 will reach 38,000,000 francs.

The Annual Meeting of Neurologists

The second annual meeting of neurologists will take place, June 3 and 4, 1921. It will be held at the Salpêtrière. Only one topic for discussion has been placed on the program; namely, "Parkinsonian Syndromes." Dr. Souques will open the discussion with a paper. A program of the meeting will be sent out in advance to all who announce their intention of being present at the meeting. All communications must deal with the question proposed. All communications and inquiries should be addressed to the general secretary: Dr. Henry Meige, 35, rue de Grenelle, Paris, 7-e.

BELGIUM

(From Our Regular Correspondent)

April 25, 1921.

The Total Number of Physicians in Belgium

The annual statistical report for Belgium contains some figures that are of interest to the medical profession. It enables us to follow the progressive increase in the number of practitioners, and the large number in the ranks of the profession elicits some surprise when we consider that the total population of the country is only 7,500,000. The record of the total number of physicians and pharmacists is as follows:

Year	Physicians	Pharmacists
1900	3,544	1,875
1910	4,263	1,883
1912	4,336	1,951
1913	4,426	1,970

The number of physicians (medicine, surgery and obstetrics) per 10,000 inhabitants was 5.79 in 1912; 5.74 in 1910, and 5.29 in 1900.

Adulteration of the Arsphenamins

For some time past, as already mentioned in a previous letter, the medical profession has, with justice, complained of the numerous adulterations that are found among certain brands of arsphenamin. The evil is not confined to Belgium alone. Quite recently the *Schweizerische medizinische Wochenschrift* called the attention of its readers to evident adulterations of neo-arsphenamin. The results of the study on the toxicity of arsphenamins, as presented by De Myttenaere, Magnus and Van Boeckel to the Belgian Academy of Medicine, have, therefore, considerable importance at this time and merit our attention. They instituted a comparison, from the qualitative standpoint, of certain brands of arsphenamin; namely, neosalvarsan, novarenobenzol-Billon and sulpharsenol. They determined the amount of arsenic, nitrogen, sulphur and sodium, and, in some of the products examined, also the sodium chlorid content. The results of their analyses go to show that these various products are not of constant composition. Furthermore, in most of them there is a deficiency in nitrogen in relation to the arsenic content, thus revealing the presence of an arsenical product other than arsphenamin. In determining the toxicity they used two different procedures. By the one they ascertained the amount of "arsenoxid"; by the other they extracted from the different products the arsenic in the inorganic form (or readily converted into the inorganic form) and determined the amount. The results of the latter method are given in cubic centimeters of hundredth-normal solution of sodium thiosulphate. A remarkable parallelism was noted between the chemical results obtained by this method and the range of toxicity found to exist in the various samples as determined by experiments on rabbits and mice. These investigators state that the ampules which were sent to them and designated as toxic all contained 0.6 gm. of the product. They consequently raise the question whether this is not a toxic dose of the drug for certain patients. Moreover, the number of cases of frank intoxication and posttherapeutic accidents is increasing. Before the Belgian Dermatologic and Syphilologic Society, Lespinne and Wydooghe lately reported a case of frank intolerance: Herxheimer reaction, erythemas, purpura hemorrhagica with salivation, which phenomena—especially the purpura—recurred with every serial treatment, so that this form of therapy had to be abandoned. Also De Grave reported four severe cases of generalized oozing eczema, which persisted for several months.

Determination of Carbon Monoxid in the Blood

Before the Belgian Biologic Society, Dr. Stockis, professor of medical jurisprudence in the University of Liége, has presented a communication in which he describes a special type of chemical reaction available for the determination of carbon monoxid in the blood. A 10 per cent. aqueous solution of zinc chlorid combined with normal blood produces a dirty brown precipitate, but with blood containing carbon monoxid a beautiful cherry-red coloration is brought about. This reaction is more sensitive than the usual chemical and spectroscopic methods. By this method, amounts of carbon monoxid as small as 2.5 c.c. per liter can be determined.

BUDAPEST

(From Our Regular Correspondent)

April 29, 1921.

The First Minister of Health for Roumania

Roumania, since it has grown in territory and population (according to the latest census 20,000,000 people), has become decidedly progressive. In medical and health matters it is taking steps which time and again the old régime considered, but rejected as inopportune. The new public health bill has been explained to the legislature by the chief sanitarian of the state. The bill provides for the creation of a bureau of health and fixes the machinery for the more adequate supervision of the health of the kingdom. The principal feature, however, is that there will be a minister at the head of the bureau, and a deputy who shall be known as the commissioner of health, equipped with a staff sufficient to handle the work of the department. A health council consisting of four medical practitioners and the commissioner will advise the department, meeting at stated periods for that purpose.

Infant Mortality in Jugoslavia

The vital statistics for last year show that although the general mortality has notably decreased, that of infants has been hardly affected. It would seem that all the hygienic advance which has been made during past years, and which has proved so beneficial to the population at large, has hardly touched the fringe of infant mortality. Its magnitude depends on alimentary disturbances, diarrhea, too frequent feeding and feeding with infected milk, etc. (There is a charity society, which distributes free pasteurized milk to the poor classes; this, however, is exceedingly small in proportion to the number of children.) Experiments have been made in Budapest from cow's milk from different suburbs, and it was found that

dirt was invariably present, varying in amount from 1 to 72 mg. per liter. The first milkings always contained the most dirt, the amount of which decreases proportionately as the milking proceeds. From a hygienic standpoint it would be wise to discard the first milking.

Measures Against Cholera

The prevalence of cholera in the Russian border adjacent to Bessarabia (now part of Great Roumania) has naturally been a subject of careful attention for the Roumanian government. Although there is no traffic at all between Russia and the neighboring part of Bessarabia, still it is likely that at least some cases of cholera will be conveyed here. Indeed, some days ago a case was reported of a Bessarabian woman who had come with her husband to Viseneff and showed symptoms of cholera. She was immediately conveyed to a hospital, while the husband and the servants were placed under observation in a pavilion for suspected cases. The case caused some nervousness throughout Bessarabia, but on microscopic examination it proved not to be cholera but typhoid fever. Meanwhile there had been a conference between the delegates of the different Roumanian, Transylvanian and Bessarabian administrative departments, of the medical, railway, seaport, police and other authorities. It was decided to abstain at first from quarantine measures but to examine the passengers (late war prisoners coming from Russia), who in great numbers pass through the Bessarabian boundary. Arrangements will be made for the conveyance of eventual cases of cholera and to keep special pavilions ready in the hospitals of Bessarabia. The water of the rivers coming from Russia will be daily examined by bacteriologists on the frontier as to the presence of cholera bacilli.

BERLIN

(From Our Regular Correspondent)

April 22, 1921.

The Berlin Session of the Surgical Congress

CONSTITUTIONAL PATHOLOGY

At the recent session of the surgical congress, held in Berlin, Professor Payr of Leipzig spoke on constitutional pathology in relation to surgery. Surgeons, he said, have thus far paid too little attention to this subject. It is true, the exact significance of the term "constitution" is not yet fully established. Some understand by constitution only the hereditary qualities transmitted by the germ plasm. However, the sum of the physical and mental good and evil inherited from one's forebears is subject to change. The most important concept for the surgeon, it was brought out, is the status hypoplasticus, with which is associated an asthenia of the tissues and the organs, and which is related to the status thymolymphaticus. In children it occurs in the form of an exudative diathesis. In this connection should be considered also the status enteroptoticus and the status neuroticus. The weakness of asthenic patients lies in the inferiority of their contractile and elastic body elements. On the other hand, we find in them a tendency to increased connective tissue formation. This leads, on the one hand, to connective tissue degeneration of organs, and, on the other hand, to good healing of wounds. Weakness of scar tissue, and hernias are rare in such subjects, but, on the other hand, there is often a tendency to keloids, formation of adhesions of the serous membranes, encapsulation of inflammatory foci (rarely is peritonitis due to disease of the appendix or the genitalia found); also a tendency to fibrous tissue formation (fibrous diathesis) and to stiff joints. On the other hand, we find an increased immunity to infections. Exceptionally strong individuals are often carried off by pneumonia, whereas asthenic subjects survive. Perhaps hemophilia also belongs in this category. There are procedures by which deficient connective tissue formation can be stimulated and the excessive combated (hormones from various endocrine glands; inorganic substances such as hydrocarbons, protein bodies, weak roentgen-ray doses on the one hand, and fibrolysin, mustard oil and pepsin as a digestant, on the other hand). In delayed blood coagulation, stimulative irradiation of the spleen, following the method of Stephan-Jurasz, may be employed. In subjects characterized by status thymicolymphaticus, great care should be exercised in connection with general anesthesia. Subjects suffering from lymphatism are often vagotonics and neurotics as well (weak heart, enlarged lymph follicles at the base of the tongue, low blood pressure, lymphocytosis, extrasystole). Here the calming influence of psychotherapy and proper sedatives is indicated. The vascular system of hypoplastic subjects is susceptible to every form of damage (fat embolism).

BIOLOGIC AND PATHOLOGIC ASPECTS OF OLD AGE

Pribram, an assistant of Professor Bier, discussed the endosecretory causes of pathologic old age. All the organs and tissues age in a different manner. The onset of old age signifies an abatement in the capacity of the cells to divide and renew themselves. In the first period of life the appearance of old-age signs and symptoms is often due to premature development, such as is brought about by the endocrine glands. After removal of a sarcomatous ovary from a 6-year-old girl who presented fully developed breasts, the manifestations of premature development receded, and the girl again assumed the character of a child. In the second period of life we often see evidences of premature old age. A woman, aged 32, came down with puerperal fever following a manual loosening of the placenta. After partial recovery, she was unable fully to regain her health. She looked prematurely old; recurring spells of drowsiness set in, and death ensued. It was a case of involvement of the hypophysis cerebri, the thyroid and the suprarenals, whereas the ovary was intact. The marked disturbance in the functioning of the thyroid gland was doubtless the main cause for the reduction of the capacity for regeneration. The bearing of the endocrine system on the constitution of an individual is very great. Owing to disturbances of the endocrine glands in pregnant mothers, malformations are liable to develop, which fact has a relation to the alleged consequences of "maternal impressions."

Campaign Against Alcoholism and the Social Evil

The reichstag committee on population propaganda has requested the government to draft a law to combat alcoholism. The committee also recommends that the government shall close all the brothels still existing in Germany and abandon the segregation policy. The committee supports its request by pointing out that such arrangements as exist are in violation of Paragraph 180 of the Penal Code.

Deaths from Vaccination

According to the recently published report on vaccination against smallpox in Prussia during the year 1918, two out of the total number vaccinated died from the results of vaccination. In one previously healthy child a generalized vaccinia developed, and a bronchitis in addition. Death ensued in sixteen days. In the second case, the child, who before the vaccination was suffering from otitis media suppurativa, died twenty-seven days after the inoculation, from sepsis. That the death of the child was in some way associated with vaccination was stated as probable. General vaccinia was observed in five other cases. The instrument chiefly used for inoculation was the Lindenborn platinum iridium knife. Vaccine points were employed in some instances. Some physicians used alcohol to sterilize their instruments. There were eight instances in which subjects were forcibly com-

pelled to submit to vaccination. In Essen there were 2,033 cases and in the government district of Cologne 1,779 cases in which persons failed to respond to the call for vaccination.

Health Insurance Statistics

According to the statistics issued by the government insurance bureau, in 1919, 163,846 insured members of the health insurance societies received therapeutic treatment at a cost of 47,003,931 marks. There were 29,747 lung and larynx patients who received constant treatment and 1,315 who received temporary treatment; there were 282 lupus patients and 258 with tuberculosis of the bones and joints; 94,546 persons were supplied with artificial teeth; 7,880 received treatment for venereal disease, and seventy-one (fifty-one women and ten men) for cancer. Of 25,765 treated for pulmonary tuberculosis, 21,884 could be dismissed in a condition to earn their living; only 3,881 were enrolled on the list of invalids.

Health Insurance in Greater Berlin

In the 222 health insurance societies (krankenkassen) of Greater Berlin there are 1,298,798 persons insured. Of this number 811,590 are insured in the twenty-eight local societies; 471,086 in the 1919 industrial societies, and the three so-called landkrankenkassen have 16,122 members.

Numerical Ratio of the Sexes

According to the census reports, the number of women in proportion to men has increased. Whereas in 1914 the excess of women over men was 1.92 per cent., it rose in 1919 to 9.04 per cent. and is now around 7 per cent. The greatest excess of women is found in Berlin, where there are 119.59 women to 100 men.

Vital Statistics of Germany and France

A comparison of the vital statistics of Germany and France yields the following results: In Germany, during the period from 1881 to 1891, the population increased 9.5 per cent.; from 1891-1901, 14.3 per cent.; from 1901 to 1911, 14.9 per cent. In France, during the same periods, the percentages of increase were 2.0, 1.6 and 1.6 per cent. In the course of thirty years the population of Germany increased 44 per cent., while that of France increased something over 5 per cent.

PRAGUE

(From Our Regular Correspondent)

April 28, 1921.

New Pathologic Institute

A new pathologic and bacteriologic institute has been opened in Prague. There are divisions for pathologic anatomy, experimental pathology, bacteriology and legal medicine. It is popularly called Hlava's Institute, from the name of its chief, Prof. Jaroslav Hlava. Dr. Hlava is the senior professor of the staff of the Czech medical school, and is a well known authority on exanthematic fevers. In addition to being president of several medical societies and a corresponding member of the French Academy of Medicine, he is also the president of the Czech Society for Cancer Research. On the day the new building for pathology was opened, the president of the republic made a gift of 100,000 crowns to the Cancer Society for continuing and developing its work.

Census of Czechoslovakia

The first census in the Czechoslovak Republic was taken, Feb. 15, 1921. Preliminary results for Bohemia, Moravia and Silesia have already been published, and it is expected that further data will be available by the middle of May. The total population in the above named three provinces is about 10,000,000. Compared with the last census, taken in 1910 there is a loss of 77,120. Preliminary figures for the city of Prague surprised those who expected that the population would reach a million. The population increased in the last decade only by 9.7 per cent., as compared with 19.8 per cent. for the previous decade. It is to be expected that there will be a marked increase in population in Great Prague as soon as the housing shortage has been overcome.

Congress of Surgeons

A congress of surgeons and gynecologists was held in Prague, April 4-5. Prof. Otakar Kukula presided. More than a hundred papers were presented. The congress was a testimony to the great influence which Maydl and Albert had on the development of surgery in this part of the world. At the first meeting the first number of a new monthly periodical, the *Surgical Review*, was presented.

Carlsbad and Other Health Resorts

The government is making every effort to facilitate the travel of foreigners into the watering places in the republic, which is one of the richest countries in this respect. Many people still fail to realize that the famous watering places, like Carlsbad and Marienbad, are within the boundaries of the Czechoslovak Republic. All the Czechoslovak consuls in foreign countries have been notified that the giving of visas on passports for foreigners going to watering places in the republic must be simplified as much as possible. Foreigners will be allowed to leave the country and come back while taking treatment in one of the watering places. A sleeping car service has been established between Paris and Carlsbad.

New Periodical for General Practitioners

Recently a number of the younger Czechoslovak physicians organized themselves into a special group which at first was opposed to the central organization of Czechoslovak physicians. Finally an agreement was reached, and the group of young physicians has been taken into the central organization as a separate section. It is expected that they will add vigor and energy to the medical organizations. Among their first enterprises must be noted the publication of a monthly periodical for general practitioners. The need of such a publication has been felt for a long time.

Marriages

William John Clarke Agnew, Lieut.-Com., M. C., U. S. Navy, Washington, D. C., to Miss Vera M. Radcliffe of Tal-u-Werydd, Cardiff, Wales, at London, England, April 27.

Edwin Wheeler Buckingham, Soochow, China, to Miss Bessie Kenniger of London, England, at Shanghai, China, February 28.

William Pinkney Herbert, Asheville, N, C., to Miss Frances Venable Carrington of Richmond, Va., April 26.

Richard Ovid Rogers, Bluefield, W. Va., to Miss Nancy Louise Martin of Stuart, Va., at Richmond, Va., April 30.

Fleete S. Steele, Lieut., M. C., U. S. Navy, to Miss Edith Marguerite Ducker of San Diego, Calif., May 2.

Andrew Robert Warner, Chicago, to Miss Gertrude Elizabeth Schnaitter of Sandusky, Ohio, April 30.

Francis Whittle Upshur to Miss Martha Maury Robinson, both of Richmond, Va., April 20.

Charles Pearre Hawkins, Fort Worth, Texas, to Miss E. Lou Scott of Sherman, Texas, May 6.

William Holcombe Aiken, New Orleans, to Miss Helen Curtis Henry of New York, May 19.

Walter Centennial Hill, Cleveland, to Miss Virginia Austin of Chicago, May 12.

John Carroll Wiggins, Winston-Salem, N. C., to Miss Inez Hester, May 16.

Frank Stoddard Johns to Miss Anne Page, both of Richmond, Va., April 30.

Bert Mobbs to Miss Violet Alice Hyatt, both of Honolulu, T. H., March 27.

Deaths

Harry Mitchell Sherman ⊕ San Francisco; College of Physicians and Surgeons in the City of New York, 1880; major, M. C., U. S. Army, in charge of the surgical service at Fort Rosecrans, Calif., and discharged, Dec. 23, 1918; surgeon to Children's Hospital, San Francisco, since 1886, and to St. Luke's Hospital, San Francisco, since 1901; clinical professor of orthopedic surgery, 1896-1899, and professor of principles and practice of surgery, 1899-1912, in the University of California, San Francisco; died, May 15, aged 66.

Oscar Huntington Allis ⊕ Philadelphia; Jefferson Medical College, 1866; Mütter lecturer in the College of Physicians of Philadelphia, from 1888-1906; Lane lecturer in Cooper Medical College, San Francisco, 1903; surgeon to Presbyterian and Roosevelt hospitals, Philadelphia; awarded Gross Prize for brochure, "Obstacles to the Reduction of Dislocations of the Hip"; a well-known surgeon and contributor to literature on his specialty; died, May 16, aged 85.

Charles W. Halterman ⊕ Clarksburg, W. Va.; Eclectic Medical Institute, Cincinnati, 1889; captain, M. C., U. S. Army, and discharged, March 31, 1919; at one time superintendent of the Weston (W. Va.) State Hospital; died, May 11, aged 53.

Richard B. Gilbert ⊕ Louisville, Ky.; University of Louisville, Ky., 1868; emeritus professor of pediatrics in his alma mater; a member of the board of education for six years; died, May 18, from cerebral hemorrhage, aged 78.

Yancey C. Blalock, Walla Walla, Wash.; Jefferson Medical College, 1884; a member of the Washington State Medical Association; coroner of Walla Walla County for three terms; died, May 12, from pneumonia, aged 61.

Elizabeth Lain, Santa Rosa, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1897; a member of the Medical Society of the State of California; died, May 16, from carcinoma of the liver, aged 56.

Moses Reginald Pollom ⊕ Thorntown, Ind.; Medical College of Indiana, Indianapolis, 1904; president of the Boone County Medical Society in 1920; died, May 13, following an operation for brain tumor, aged 42.

Frank Borsody, New York; University of Budapest, Hungary, 1872; died, May 17, from injuries received when he leaped from a window of his home while despondent on account of ill health, aged 75.

Frank Augustus Bryant ⊕ White Plains, N. Y.; Bellevue Hospital Medical College, 1895; a well-known author of textbooks on stammering and speech disorders; died, May 17, from pneumonia, aged 69.

Russell S. Hill, Maplewood, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1900; was instantly killed, May 5, when he was struck by a truck while returning from a visit to a patient, aged 72.

Frederick William Wunderlick ⊕ Brooklyn; St. Louis Medical College, 1864; surgeon to St. Peter's and Wyckoff Heights hospitals; a veteran of the Civil War; died, May 15, from pneumonia, aged 79.

John Franklin Grabill, Elyria, Ohio; Miami Medical College, Cincinnati, 1880; was found dead, May 13, having committed suicide by hanging, while despondent on account of ill health, aged 65.

William Preston Simpson, Louisburg, N. C.; University of Virginia, Charlottesville, 1903; a member of the Medical Society of Virginia; died, about April 28, from cerebral hemorrhage, aged 42.

Lauriston Hardin Hill, Germanton, N. C.; Jefferson Medical College, 1861; a member of the Medical Society of the State of Pennsylvania; a Confederate Veteran; died, May 13, aged 84.

Virgil W. Hudson, Sallisaw, Okla.; Kentucky School of Medicine, Louisville, 1894; a member of the Kentucky State Medical Association; died, May 11, from uremia, aged 71.

Arthur Scrimgeour ⊕ Bridgeport, Conn.; Long Island College Hospital, Brooklyn, 1909; captain, M. C., U. S. Army, and discharged, March 24, 1919; died, May 11, aged 37.

William H. Roberts, Terre Haute, Ind.; Jefferson Medical College, 1861; a practitioner of Terre Haute for half a century; a veteran of the Civil War; died, May 8, aged 81.

⊕ Indicates "Fellow" of the American Medical Association.

William Allen Brooks ⊕ Boston and Lincoln, Mass.; Harvard University Medical School, 1891; lieutenant-colonel, Massachusetts State Guard; died, May 20, aged 56.

John McCurdy Knott, Los Angeles; George Washington University, Washington, D. C., 1870; a practitioner of Sioux City, Iowa, for forty years; died, May 14, aged 74.

Frank L. Watkins, Buffalo and Orchard Park, N. Y.; University of Buffalo, 1891; a member of the Medical Society of the State of New York; died, May 13, aged 57.

William Willis Cummings, Brooklyn; University of the City of New York, 1882; surgeon of the *S. S. Trafford Hall;* died in Calcutta, India, February 10, aged 62.

Robert B. Woodward, Somerset, Ohio; Western Homeopathic College, Cleveland, 1867; for fifteen terms mayor of Somerset; died, May 15, from uremia, aged 82.

John Alfred Burch, Eastman, Ga.; Atlanta (Ga.) College of Physicians and Surgeons, 1909; a member of the Medical Association of Georgia; died, May 6, aged 38.

William James Cowardin, Richmond, Va.; University College of Medicine, Richmond, 1898; a member of the Medical Society of Virginia; died, May 11, aged 44.

John James Harper, Alliston, Ont.; University of Toronto, Ont., 1892; at one time mayor of Alliston; died at the Wellesly Hospital, Toronto, May 11, aged 54.

Thomas Potts Allen, Pembroke, Ky.; University of Louisville, Ky., 1884; a member of the Kentucky State Medical Association; died, May 7, aged 62.

Reuben Henry Duggar, Gallion, Ala.; University of Pennsylvania, Philadelphia, 1858; a Confederate veteran; died at Auburn, Ala., May 5, aged 83.

George Washington Miller ⊕ East Chicago, Ind.; Miami Medical College, Cincinnati, 1901; died, May 12, from carcinoma, aged 43.

Joseph Come Maranda, Montreal, Que.; Laval University, Quebec, Que., 1876; formerly of Woonsocket, R. I.; died, May 7, aged 75.

Lucien C. Ely, New Palestine, Ind.; Indiana Medical College, Indianapolis, 1878; died, May 5, from cerebral hemorrhage, aged 66.

Dennis W. King, Wenatchee, Wash.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; died in Seattle, April 6, aged 60.

John Anderson Ingles, Hoopeston, Ill. (license, Illinois State Board of Health, 1878); died, May 4, from pneumonia, aged 83.

Daniel Lewis Porterfield ⊕ Jamesport, Mo.; Washington University Medical School, St. Louis, 1906; died, April 25, aged 41.

Frank Pierce Kenyon ⊕ Pomona, Calif.; Detroit Medical College, 1876; died, May 8, following a surgical operation, aged 67.

John S. Wood, Cleveland; Western Reserve University, Cleveland, 1876; died, May 6, from heart disease, aged 67.

Fremont Reid, Denver; Missouri Medical College, St. Louis, 1886; formerly of Humphreys, Mo.; died, May 5, aged 70.

Bernard George Gordon, McKenzie, Tenn.; Vanderbilt University, Nashville, Tenn., 1879; died, April 16, aged 74.

Elbert Judson Clark, Cleveland; Chicago Medical College, 1871; formerly of Rockford, Ill.; died, May 8, aged 73.

Marcus Clay Graham, Gainesville, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; died, April 29, aged 41.

Robert W. McClelland, Pittsburgh; Hahnemann Medical College and Hospital, Philadelphia, 1884; died, May 18.

Owen Ambrose Igoe, North Tarrytown, N. Y.; Queen's University, Kingston, Ont., 1903; died, May 11, aged 40.

John H. Sutton, Sutton, Ark. (license, Arkansas, 1903); died, May 16, from carcinoma of the liver, aged 53.

Albert Parker, Ora, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1895; died, May 6, from gangrene.

Busrod Foley Laird, Covington, Ky.; Medical College of Ohio, Cincinnati, 1874; died, May 3, aged 74.

Alfred M. Potter, Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1872; died, May 5, aged 70.

William S. Hendricks, Iola, Kan.; Medical College of Ohio, Cincinnati, 1860; died, April 29, aged 93.

Frank H. Rowe, Cincinnati; Miami Medical College, Cincinnati, 1893; died, May 4, aged 73.

Harrison Peachee, Indianapolis (license, Indiana, 1898); died, May 11, aged 78.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

"NATIONAL IODINE SOLUTION" NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

"National Iodine Solution" is a proprietary sold by the National Drug Co., Philadelphia, Pa. From inquiries received by the Council on Pharmacy and Chemistry it is evident that the product is extensively brought to the attention of physicians by means of circulars. The name implies that it is a solution of iodin and the inference is given that it has the advantages of iodin without the disadvantages.

COMPOSITION

In view of the foregoing, the Council took up the investigation of "National Iodine Solution," and in turn asked the A. M. A. Chemical Laboratory to analyze it. The chemist's report follows:

According to the label of National Iodine Solution, "each fluid ounce represents three grains Proteo-albuminoid compound of iodin (National)"; also an alcohol declaration of 7 per cent. is made. Otherwise no information is given as to the composition either of the "solution" or of "Proteo-albuminoid compound of Iodine."

Each bottle contained about 115 c.c. (nearly 4 ounces) of a yellowish solution, acid in reaction, having an odor resembling witch hazel; its specific gravity at 25 C. was 0.9860. Qualitative tests indicated the presence of zinc, alcohol, sulphate, an iodin compound (the solution gave tests which indicated a very small amount of free iodin; most of the iodin was in the form of ordinary iodid), a small amount of vegetable extractives, and traces of aluminum and potassium. If any protein was present, it was in amounts too small to be identified, though a small amount of a nitrogenous compound was present. The amount of solids in "National Iodine Solution" was equivalent to 0.72 per cent. and the amount of ash, to 0.2 per cent. Quantitative estimations yielded the following:

Alcohol (by volume)	7.0 per cent.
Zinc (Zn^{++})	0.096 per cent.
Iodin (free and combined)	0.029 per cent.
Sulphate (SO_4^{--})	0.146 per cent.
Protein (N x 6.36)	0.012 per cent.

The above findings indicate that each 100 c.c. contains about 7 c.c. of alcohol, 0.5 gram of zinc sulphate U. S. P. ($ZnSO_4 + 7H_2O$.), 0.03 gram of iodin, 0.01 gram of protein (calculated as such from nitrogen times the factor 6.36) and some hamamelis water. Expressed in equivalent apothecary terms, each fluid ounce contains essentially:

Zinc sulphate	2⅓ grains
Iodin (free and combined)	⅛ grain
Protein	1/25 grain
Alcohol	34 minims

This amount of alcohol is equivalent to about 3½ fluid drams of witch hazel water. Although the label states that each fluid ounce contains three grains of "proteo-albuminoid compound of iodine," yet the sum of the protein (calculated from nitrogen content) and iodin components is equivalent to less than ⅛ grain.

"National Iodine Solution" appears to be very similar to "Gonocol (The National Drug Co., Philadelphia, Pa.)," which was analyzed by the Bureau of Chemistry of the U. S. Department of Agriculture. The bureau stated that "it [Gonocol] consisted essentially of an aqueous solution of zinc sulphate, hamamelis water, a small amount of alcohol, 0.38 grain of iodin, and 0.36 grain of protein per fluid ounce."

It is evident that "National Iodine Solution" is not a solution of free (elementary) iodin as the name suggests; instead it appears to be a solution of zinc sulphate in witch hazel water containing less than 0.03 per cent. of combined iodin and *not more than a trace of free iodin*. "National Iodine Solution" is one more to be added to that already long list of proprietaries which makes capital of the high esteem in which physicians hold iodin.

THE CLAIMS

An advertising circular sent to physicians begins:

"*Dear Doctor:* We beg to suggest a line of treatment while using National Iodine Solution which our many years of experience has proven to us to give the best and quickest results in the treatment of inflammation of the urethral tract . . ."

In it are given directions for the treatment of "acute gonorrhea, male," "anterior urethritis," "anterior-posterior urethritis," "ardor urinæ and chordee," etc., by means of National Iodine Solution and other proprietaries of the National Drug Company's make. In fact the solution is claimed to be "Indicated in All Conditions of Urethra Accompanied by a Discharge."

COMMENT AND CONCLUSIONS

The therapeutic claims made for "National Iodine Solution" are unwarranted. Such a solution is not indicated in all conditions of the urethra accompanied by discharge. The advice contained in the circular is equivalent to mail-order treatment of gonorrhea.

It is of interest to note that the claims for an identical or a similar solution prepared by the National Drug Company as a treatment for gonorrhea and intended for use by the laity, has been adjudged misbranded by the federal authorities (Notice of Judgment No. 8150, issued Jan. 25, 1921) in that it misled and deceived the purchaser or purchasers thereof in the statements regarding the therapeutic or curative effects of the article, which falsely and fraudulently represent it to be indicated in all conditions of the urethra accompanied with a discharge, "whereas in truth and in fact it was not."

The Council would emphasize that if physicians give heed to advertising such as that sent out by the National Drug Company for this preparation the medical profession cannot with good grace protest against the routine treatment of venereal diseases by quacks and "patent medicine" venders.

Correspondence

THE MEDICAL PROFESSION AND THE VOLSTEAD ACT

To the Editor:—The purpose of this letter is to bring to the attention of the physicians of the country the significance of recent and pending legislation affecting their liberty in the selection of remedies. While the restrictions of the Volstead Act form the basis of the letter, we wish distinctly to disclaim any intention of initiating among physicians a propaganda for or against prohibition. In fact, from the present point of view, it is immaterial whether a physician does or does not believe in prohibition. The point at issue is the right of the physician to select his remedies and to decide what doses of these remedies each patient requires.

The Volstead Act denies this right. While recognizing the medicinal value of alcohol, it says to the physician, "Thou shalt not give more than a pint of whisky (or brandy) to any patient within ten days." Further than this, recent interviews given by persons interested in promoting similar legislation contain the threat to prohibit altogether the medicinal use of alcohol. While there is difference of opinion among the physicians of the country with respect to the therapeutic value of alcohol, the number of those having faith in it is sufficiently large to receive attention.

The medical restrictions of the Volstead Act constitute an indictment of the integrity of the whole profession, in that it is assumed that many of its members, unless restrained by law, will pander for gain to the people's desire for drink.

Under the provisions of the Volstead Act, physicians who believe in the therapeutic use of alcohol are debarred from the practice of their profession with respect to patients who in their opinion require more than one pint of whisky (or brandy) within ten days (the equivalent of about 1⅓ ounces a day) since the statute states, "Any person violating the provisions of any permit . . . or who violates any of the provisions of the law shall be fined for the first offense. . . . If a permittee is guilty of wilfully violating the law . . . *permit will be revoked and will not be reissued to such person within one year thereafter*" [italics ours]. We have been told, however, at the office of the Prohibition Directory in New York City that he (the director) may, in his discretion, permit physicians to continue to treat patients who require alcohol.

Another provision of the Volstead Act reads that "Physicians may not prescribe liquor for their own personal use, and pharmacists should refuse to fill any such prescription presented to them." In other words, a physician who is ill and needs alcohol is prevented by law from obtaining it unless a fellow practitioner with a permit to prescribe it is near by.

In some sections of the country, especially in rural districts, it is impossible for physicians to prescribe alcohol, though they may hold licenses, because local conditions prevent druggists from carrying it in stock.

Further, it should be pointed out that the Volstead Act contains the most drastic legislation affecting the medical profession yet enacted. A physician becomes a criminal by the mere fact of writing a prescription for more than a pint of whisky for one patent within ten days, and, so far as the revocation of his permit is concerned, is denied his constitutional right of trial by jury. (This interpretation of the law is supported by competent legal opinion.) The law states that "After a permit has been revoked by the Commissioner, the permittee may have a review of the decision before a court of equity. During the pendency of such action such permit may be temporarily revoked."

The precedent established by the Volstead Act in restricting medical practice should, if physicians value their therapeutic liberty, be met with a protest which will command attention. Today it is alcohol, tomorrow it may be any remedy which falls under the ban.

We would suggest that the physicians of the country write to their Senators and Representatives in Congress in terms which leave no doubt with respect to their attitude concerning the regulation of therapeutic proceedure by statute.

CHARLES L. DANA, M.D., HARLOW BROOKS, M.D.,
SAMUEL A. BROWN, M.D., GEORGE B. WALLACE, M.D.,
SAMUEL W. LAMBERT, M.D., WALTER B. JAMES, M.D.,
ROBERT A. HATCHER, M.D. WARREN COLEMAN, M.D.,
HERMANN M. BIGGS, M.D., New York.

THE SHEPPARD-TOWNER BILL

To the Editor:—Dr. Oppenheimer, in her communication (THE JOURNAL, May 21, 1921, p. 1418), states the obvious fact that the Children's Bureau has eminent pediatricians as consultants, competent physicians and public health nurses; therefore, she concludes, it is the logical agency to take charge of expending millions for better obstetrics. She goes farther and asks the medical profession to back this bill as the best expedient so far suggested. Dr. Oppenheimer is a pediatrician and is certainly loyal to the Children's Bureau.

As an obstetrician vitally interested in better obstetrics and in educating the public in the necessity of demanding better obstetric care, I cannot accept with enthusiasm the provision of the bill that places the administration in the hands of the Children's Bureau. Pediatricians are not trained or equipped to give prenatal care, or to operate the obstetric requirements of the Sheppard-Towner bill. "A public health nurse and a consultation center" are powerless for good unless the public health nurse has had a thorough training in prenatal care and the consultation center contains a trained obstetrician.

The chief objection to this bill is that it cannot give what it promises if administered as proposed. The women of this country who are demanding this measure are doing so because they think that it promises better obstetrics. They are asking for bread, and while perhaps they would not receive a stone, at the same time the loaf promises very little nourishment, because it is to be administered by a bureau that minimizes the importance of obstetric care. This was brought out at the hearings on the bill. It is further emphasized by Dr. Oppenheimer directly and indirectly in her letter.

Her charge that Mrs. Putnam's objection is based on insufficient knowledge is perfectly ridiculous. The point is that Mrs. Putnam, who has taught the world the value of the prenatal nurse, knows that a division of hygiene composed largely of pediatricians is not equipped for the job of teaching the United States of America better obstetrics.

Place the administration of this bill in the hands of the Public Health Service—prejudiced neither for obstetrics, neglecting the child, nor for pediatrics, neglecting the mother; equipped for both, administered by broad minded, medically trained experts. Then the Sheppard-Towner Bill can keep its promise to the mothers of America.

JAMES LINCOLN HUNTINGTON, M.D., Boston.

PROTEOGENS IN SYPHILIS

To the Editor:—We have in this city a physician who has just begun a prison sentence for his second conviction for selling narcotics to addicts. Two of his patients came to me recently, with clear histories of syphilitic infections a year ago, and said he had been treating them with Proteogen No. 10, one injection every other day, for almost a year. Both these patients were four-plus to the Wassermann test, and one of them showed a papular crop of syphilids covering about two thirds of the entire skin area. The doctor had explained to the patient that this was a sign that the treatment was "driving it out" of the system.

The laboratory reports on these cases reached my office at the same time the mail brought a copy of the *Therapeutic Digest*, put out by the Cincinnati firm that manufactures "Proteogens," under the formula of Dr. Horovitz, who, if I remember correctly, is the Horovitz of the late "Autolysin" cancer cure. On the back page of this precious bit of advertising is a list of proteogens for everything from cancer to diabetes.

The tragedy of the whole thing is that here are two people at least who have been deprived of adequate treatment for a year, spending money for ignorance and fakery, getting worse instead of better and all because of the cupidity of these people, and their success in putting over, on some of the weak sisters of the profession, this pseudo-scientific bunk.

C. F. ENGELS, M.D., Tacoma, Wash.

[COMMENT.—Proteogens were the subject of an extensive report by the Council on Pharmacy and Chemistry which appeared in THE JOURNAL, July 12, 1919. The Council declared that all twelve of the Proteogens were inadmissible to New and Nonofficial Remedies because their composition is secret, because the therapeutic claims made for them are unwarranted and because the secrecy and complexity of their composition makes their use irrational. The "Dr." A. S. Horovitz, who is alleged to be the originator of the Proteogens, is not a physician. He is, as our correspondent says, alleged to be the originator of "Autolysin" exploited some years ago as a remedy for cancer and later shown to be worthless. The assertion has been made that Plantex—now called Proteogen No. 1—is similar to "Autolysin."—ED.]

LOCAL ANESTHESIA IN OPERATIONS FOR MASTOIDITIS

To the Editor:—Enthusiasts over one form of anesthesia too often possess an unforunate tendency to consider their special hobbies as perfection and all other forms as imperfect. E. E. Koebbe is no exception, as he endeavored in his recent paper (The Journal, May 14, 1921, p. 1334) to impress on your readers the awful defects of general anesthesia in goiter.

Under the "supervised" anesthesia used in the Navy, which permits the administration of anesthetics by anybody and everybody, usually an orderly or other nonmedical persons, the disadvantages claimed by Dr. Koebbe doubtless occur. If he will cease the employment of such unskilled and dangerous anesthetists and will employ physician experts he will discover that under their administration the operative field is not contaminated, no one but the patient will inhale the anesthetic, mucus will be prevented by premedication, falling tongue will be very rare and, should it occur, will be efficiently managed and pneumonia will not occur if the patient is protected from chill during and after operation.

As long as "supervised" anesthesia is inflicted on unfortunate gob and doughboy, the trouble experienced by Dr. Koebbe will continue. Only expert anesthesia will end it. Dr. Koebbe is, of course, not responsible for the type of anesthetist forced upon him by the U. S. Navy.

A. S. McCormick, M.D., Akron, Ohio.

REQUEST FOR DATA ON VARIOUS AUTHORS

To the Editor:—I desire data concerning:

A. B. Strong, author of "Illustrated Natural History" and "American Flora."

Edward H. Dixon, of New York (1808-1880), editor of the *Scalpel.*

Thomas L. Nichols (1820 ?—), early dietitian and hydrotherapist in New York.

Henry McMurtrie, who wrote "Sketches of Louisville and Its Environs."

I am also anxious for references in the literature to Alban Goldsmith's ovariotomy.

I shall be glad of the help of any of your readers.

Howard A. Kelly, M.D., Baltimore.

CONTAGIOUS DISEASES AND THE MEDICAL CURRICULUM

To the Editor:—From time to time suggestions are made regarding the curriculum of medical schools. May I add a suggestion from the standpoint of a health department.

Medical students see few or no cases of contagious diseases while in the schools, and with the exception of those who serve internship in county or municipal hospitals, even those with hospital experience see no contagious diseases. And yet, when the recent graduate commences practice, one of the most important classes of work he is likely to obtain as a family physician is caring for the children suffering from acute infectious diseases. We are seeing many cases of contagious diseases that are distinctly atypical, and the general textbook on medicine cannot possibly cover all points in the diagnosis.

We observe frequently cases of nephritis following undiagnosed cases of scarlet fever. In these cases no precaution in the way of diet and general management had been taken to safeguard the kidneys because the physician had not recognized the case, and naturally had not thought of taking these precautions.

In diphtheria the young graduate is too likely to expect to see a typical membrane before realizing that it might be diphtheria; and a certain percentage of cases are laryngeal from the first, or nasal, or at times may prove fatal, yet resemble nothing except a tonsillitis. Without a clinical experience the physician is not so likely to bear these possibilities in mind and take cultures early. Smallpox is often far removed from the picture given in textbooks and often is difficult to diagnose.

It is rather hard on a physician when starting in practice to make an incorrect diagnosis of a contagious disease. This may not be his fault, as he probably never has seen a case before. When a member of the health department comes along and diagnoses this case correctly, the family is too ready to believe that he does not know anything about medicine, whereby in reality he may be very well posted, and have fallen down because of lack of proper training while in the medical school.

It seems to many of us, in looking back over our days in college, that a great deal of the teaching was more to display the ability of the teacher than to give instruction to the student. A student observes a surgeon of experience operating in a selected case under most favorable conditions, with trained assistants, and gains the impression that it is an easy thing to perform major operations. If a student does not obtain hospital experience after graduating and before entering private practice, he is liable to attempt these operations with possibly disastrous results to the patient and to himself. Many of us believe that more attention should be paid to instructing students in the care of the commonplace diseases that are usually met in private practice, and less attention to handling cases which require special training.

J. W. Robinson, M.D., Los Angeles.
Deputy Health Officer, Los Angeles County.

"FALL OF BLOOD PRESSURE AFTER INJECTIONS OF NEO-ARSPHENAMIN"

To the Editor:—In The Journal, May 21, page 1419, Dr. J. Phillip Kanoky states that he "has found no mention in the literature of the effect on blood pressure following the intravenous use of neo-arsphenamin." On pages 387 and 399 of Harrison's "Venereal Diseases," Oxford Medical Press, the desired information may be found. Syphilographers are agreed that little alteration of the blood pressure occurs in syphilis. In the intravenous administration of neo-arsphenamin in the treatment of syphilis or of any other disease, the injection should invariably be preceded by determination of the blood pressure. Should this be low, the patient is in danger of reaction. In such cases the injection of epinephrin is prophylactically efficient.

John E. Luzadder, M.D., Bloomington, Ind.

"PUBLIC HEALTH ACTIVITY AND PRIVATE PRACTICE IN VENEREAL DISEASE CONTROL"

To the Editor:—In a contribution to The Journal, April 30, under the title of "Public Health Activity and Private Practice in Venereal Disease Control," Dr. J. H. Stokes has written of the efforts and wide publicity recently given to the prevention of venereal disease. So far as they apply to public education in sex hygiene, prophylaxis after exposure and legal measures seeking to control the infected, such as compulsory notification, and segregation, they have met with results of more or less promise. But however effective these efforts may be, they touch only a few of the phases of a many-sided problem. Dr. Stokes calls attention to another phase: the treatment of venereal disease in the hands of the practitioner, whether specialist or otherwise, whether in private or dispensary practice. Perhaps much less need be said of syphilis than of gonorrhea, the pariah of the genito-urinary specialist. Within the last fifteen years much has been done

to control promptly through treatment the contagious syphilitic. While syphilis has enjoyed all the advantages of the favorite offspring the more effective treatment of gonorrhea has been almost completely neglected.

Since urology has become a well-defined specialty, the responsibility devolves on the urologists to promote a better understanding of the processes at work in gonorrhea as well as improvement in its treatment. But the tendency to develop the surgical aspects of the specialty, to elucidate the pathologic physiology of urinary excretion, to refine technical procedures has apparently so diverted their interests that gonorrhea seldom has its day in court. On urologic programs it is rarely in evidence, and, if present, is lightly touched on and plays a subordinate rôle. A dissertation on the subject confers little prestige and less honor: it may brand the aspiring scientific urologist as a "clap doctor," a position from which he will have difficulty in extricating himself.

Yet, if one were to consider what single practical factor would contribute most to the prevention of the spread of gonorrhea, I believe that it would be the more critical and better treatment of the stage when it is nothing more than an acute anterior urethritis. Such improvement in treatment, when coupled with an attentive attitude and a conscientious sense of responsibility equally as great as that imposed by any grave surgical condition, will serve to bring the contagious elements of the disease under more prompt control, and will prevent those chronic complications which play such a large part in distributing it widely.

If "a fair demand is made of us, a demand that the medical practitioner . . . shall refuse to accept patients with syphilis and gonorrhea for treatment unless he has had an amount of training adequate for the work he attempts," then in the case of gonorrhea it becomes incumbent upon the urologist as a specialist to give the early manifestations of this disease more serious attention and to accord it a place on his program which its importance warrants. If training is to be adequate, besides competence it implies interest on the part of the instructor.

MELVILLE SILVERBERG, M.D., San Francisco.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

METHOD OF PREPARING BODIES FOR DISSECTION

To the Editor:—Please give me in detail the most approved method of preparing subjects for dissection, including both method of preservation and that of injection of arteries and veins with coloring materials.

Department of Anatomy. T. D. MANSFIELD, M.D., Seoul, Korea.

To the Editor:—Please give formula for arterial injection in cadaver that will show color through the artery.

W. L. BROWN, M.D., El Paso, Texas.

ANSWER.—Embalming fluid consists of equal parts of denatured alcohol, crystalline phenol (carbolic acid) and glycerin, stirred thoroughly, and allowed to stand an hour or more. It is injected by T tube into the femoral artery, 7 quarts to each 150 pounds of body weight, under a gravity pressure of 3 or 4 feet. This takes a variable time. Inspection of the surface will show whether or not the fluid has entered any particular part. If it does not enter the other lower extremity, a cannula should be put into the femoral artery of that side also, and the fluid injected distally. If the fluid does not run well into the hands or feet, or if the body is greatly emaciated, a hollow needle, 18 inches long, is run distally under the skin of the extremity, and a pint or more of the fluid is injected slowly with a syringe into each of the extremities.

COLORING THE ARTERIES

A week after embalming, there is injected with a brass syringe, either (1) corn-starch, 90 parts, red lead, 10 parts, and hot water, about 210 parts (enough to make a suspension which is thoroughly fluid while hot), the injection being continued till the rubber tubing connecting the syringe with the cannula remains firm for a minute or two after pressure ceases, or (2) ultramarine blue, shellac and alcohol. This will require a month to "set."

STORAGE

Bodies should be stored in tanks containing either 3 per cent. phenol in water or liquid petrolatum. Good tanks may be made of concrete, reinforced, and finished so as to have a smooth, impermeable surface on the inside.

CARE DURING DISSECTION

Evaporation from the extremities may be prevented by covering them with petrolatum, tissue paper and gauze bandages. At the end of each day, the exposed parts should be covered with cloths wrung out of cold water, and the entire body covered with a sheet of oilcloth. Should any part tend to dry out or to become black, immersion over night in the 3 per cent. phenol tank will help.

The following references may be consulted:

Mall, F. P.: *Bull. Johns Hopkins Hosp.* **16**: 38, 1905.
Keiller, W.: *Am. J. Anat.* **2**: 7, 1902-1903.
Lusk, W. C.: *Anat. Rec.* **3**: 47, 1909.

LEWISOHN'S METHOD OF TRANSFUSION OF CITRATED BLOOD

To the Editor:—Please give, briefly, the technic of Lewisohn's sodium citrate method of blood transfusion. Please omit my name.

E. G., Arizona.

ANSWER.—Lewisohn claims that a minute dose—0.2 per cent.—of sodium citrate is sufficient to prevent coagulation of the blood for forty-eight hours, and that the maximal dose which can be injected safely intravenously into an adult is 5 gm. The technic of transfusion of citrated blood consists of taking the blood from the donor and injecting the citrated blood into the recipient. The outfit for a citrate transfusion consists of two glass ampules, each containing 50 c.c. of a 2.5 per cent. sterile solution of sodium citrate; two large graduated glass jars of 500 c.c. each; two small graduated glass jars of 50 c.c. each; one glass rod; one arsphenamin flask, and two cannulas—one large size and one medium size. The blood is obtained from the donor by puncture of one of his arm veins, after having previously been tested for syphilis and for hemolysis and agglutination. The average transfusion consists in transferring 500 c.c. of blood from donor to recipient. The ampule is emptied into one of the 50 c.c. jars. From this jar 25 c.c. is poured into the large glass jar. A tourniquet is applied to the donor's arm, and one of the prominent veins is punctured. The blood is mixed with citrate solution by gently stirring with a glass rod. After 250 c.c. of citrated blood is collected, the residual 25 c.c. required for the proper citration of 500 c.c. of blood is added. The cannula is then removed and the small puncture opening is covered with a piece of gauze. The introduction of the citrated blood into the recipient resembles an intravenous infusion. The vein is exposed, and the cannula is introduced and attached to an arsphenamin apparatus, and 50 c.c. of physiologic sodium chlorid solution is allowed to run in, immediately followed by the citrated blood, thus safely eliminating the air contained in the rubber tubing without wasting any of the donor's blood. The technic of blood transfusion is described fully in the Handbook of Therapy, American Medical Association Press, p. 722.

BLEACHING OF BONES

To the Editor:—Please let me know of a good method to bleach bones just removed from the body; or, rather, which substances are employed in dissecting-rooms to keep bones constantly white.

DR. JACINTO PEREZ, H., San Salvador, El Salvador, C. A.

ANSWER.—The best method for bleaching bones is to expose them to ether vapor. The bones are laid on a rack in a metal box containing ether. By means of heat, the ether is vaporized and the bones are bleached. Immersion in xylene or gasoline is a much cheaper method, but not so good as the first mentioned, because not all of the oil is removed from the bones thereby.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 12. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, July 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

CALIFORNIA: San Francisco, June 27-30. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

COLORADO: Denver, July 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford, July 12-13. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford

CONNECTICUT: New Haven, July 12. Sec., Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, June 21-23. Sec., Dr. P. S. Downs, Dover.

FLORIDA: Jacksonville, June 13-14. Sec., Reg. Bd., Dr. William M. Rowlett, Citizens Bank Bldg., Tampa.

GEORGIA: Atlanta, June 8-10. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, June 20-23. Supt. of Registration, Mr. F. C. Dodds, Springfield.

INDIANA: Indianapolis, July 12-14. Sec., Dr. Wm. T. Gott, 84 State House, Indianapolis.

IOWA: Iowa City, June 9-11. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 21-22. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, June 9-11. Sec.Treas., Reg. Bd., Dr. Roy B. Harrison, 1551 Canal St., New Orleans.

MAINE: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MARYLAND: Baltimore, July 19. Sec., Regular Board, Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, July 12-14. Sec., Dr. Walter P. Bowers, Room 144, State House, Boston.

MICHIGAN: Ann Arbor, June 14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 7-9. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 21-22. Sec., Dr. W. S. Leathers, University.

MISSOURI: St. Louis, June 13-15. Act. Sec., M. E. Holliway, State House, Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS, Boston, June 14-21. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEBRASKA: Lincoln, June 7-9. Sec., Dept. of Public Welfare, Mr. H. H. Antles, State House, Lincoln.

NEW JERSEY: Trenton, June 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Kemp P. B. Bonner, Morehead City.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, July 5-7. Sec., Dr. Urling C. Coe, 1208 Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 5-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

RHODE ISLAND: Providence, July 7-8. Dr. Byron U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, June 28. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Deadwood, July 19-20. Director of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.

TENNESSEE: Memphis, Nashville and Knoxville, June 10-11. Sec., Alfred B. De Loach, 1001 Exchange Bldg., Memphis.

TEXAS: Austin, June 21-23. Sec., Dr. Thomas J. Crowe, 918-919 Dallas Co. Bank Bldg., Dallas.

VERMONT: Burlington, June 28-30. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 14-17. Sec., Dr. J. W. Preston, 511 MacBain Bldg., Roanoke.

WASHINGTON: Olympia, July 12. Commissioner of Licensure, Mr. Wm. Melville, Olympia.

WEST VIRGINIA: Charleston, July 12. State Commissioner of Health, Dr. L. T. Vinson, Masonic Bldg., Charleston.

WISCONSIN: Milwaukee, June 28-30. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

WYOMING: Cheyenne, June 6-8. Sec., Dr. J. D. Shingle, Citizens National Bank Bldg., Cheyenne.

Colorado January Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 4, 1921. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 17 candidates who took the physician's and surgeon's examination, 12, including 1 osteopath and 1 graduate of a dental school, passed, and 5 candidates, including 3 osteopaths, failed. Twenty-six candidates were licensed by reciprocity. One candidate was licensed on government credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1911)	82.2
Johns Hopkins University		(1916)	94.3
Eclectic Medical University, Kansas City		(1917)	79.6
St. Louis College of Phys. and Surgs.		(1915) 76.2, (1920) 75.2,	78.5
Lincoln Medical College		(1908)	76.8
University of Pennsylvania		(1920) 82.5,	84.3
University of Berlin		(1913)*	86.1
	FAILED		
Kansas City College of Medicine and Surgery		(1920)	62.4
University of West Tennessee		(1918)	60

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1913)	S. Dakota
Atlanta Medical College		(1916)	Georgia
American Medical Missionary College		(1910)	Nebraska
Jenner Medical College		(1910)	Illinois
Northwestern University		(1906)	New Jersey
Rush Medical College	(1893) Wisconsin,	(1906)	S. Dakota
Iowa Medical College		(1885)	Iowa
Keokuk Medical College		(1902)	Iowa
Hospital College of Medicine, Louisville		(1906)	Kentucky
Kentucky School of Medicine	(1907) Illinois,	Indiana	
Louisville Medical College	(1893) Utah,	(1904)	Kentucky
University of Louisville		(1917)	Kentucky
Tufts College Medical School		(1910)	Maine
University of Minnesota Medical School		(1916)	Minnesota
Missouri Medical College	(1890) (1899) Missouri,	(1895)	Washington
St. Louis College of Physicians and Surgeons		(1904)	Arkansas
Washington University Medical School		(1919)	Wisconsin
Jefferson Medical College		(1884)	Penna.
Memphis Hospital Medical College		(1900)	Louisiana
University of Texas		(1912), (1919)	Texas

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Tufts College Medical School		(1917)	U. S. Navy

* Graduation not verified.

Alabama January Examination

Dr. Samuel W. Welch, chairman, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan. 11-14, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 7 candidates examined, 5 passed and 2 failed. Three candidates were licensed by reciprocity and 2 candidates were licensed on government credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College		(1915)	89.5
New York Homeopathic Medical College and Hosp.		(1899)	88.7
Jefferson Medical College		(1920)	89.6
Vanderbilt University		(1920)	86.8
University of Virginia		(1920)	91.9
	FAILED		
Birmingham Medical College		(1915)	73.7
Georgia College of Eclectic Medicine and Surgery		(1913)	61.7

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hospital College of Medicine, Louisville		(1903)	Kentucky
Memphis Hospital Medical College		(1912)	Mississippi
University of Tennessee		(1891)	Mississippi

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of the City of New York		(1890)	U. S. Navy
University of Tennessee		(1916)	U. S. Army

Minnesota January Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Jan. 4-6, 1921. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Twenty-eight candidates were examined, all of whom passed. Two candidates were licensed on certificates from the National Board of Medical Examiners. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1909)	81.3
Rush Medical College		(1916)	88
Harvard University	(1878) 78.5,	(1919)	87.5
University of Minnesota		(1920)*	78.5, 84.8, 85.7, 86, 87.4, 87.9, 88.1, 88.4, 88.5, 88.6, 88.8, 89, 89.2, 89.3, 89.4, 89.5, 89.6, 89.8, 89.8, 89.9, 90.8, 91.3, 91.6, 92.7

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital, Chicago		(1920)	Illinois
Rush Medical College	(1912) Illinois,	(1915)	S. Dakota
University of Illinois		(1918), (1920)	Illinois
Indiana University		(1908)	Indiana
Milwaukee Medical College		(1903), (1910)	N. Dakota

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Northwestern University		(1917)	Natl. Bd. Med. Ex.
Rush Medical College		(1919)	Natl. Bd. Med. Ex.

* These candidates have finished the medical course, and received their M.B. degrees and will obtain the M.D. degree after they have completed a year's internship in a hospital.

Social Medicine and Medical Economics

OCCUPATION THERAPY

W. GILMAN THOMPSON, M.D.
Professor of Medicine Emeritus, Cornell University Medical College
NEW YORK

Before the war, so-called "occupation therapy" was extensively practiced in the treatment of insane, tuberculous and neurasthenic patients and, to some extent, for chronic cardiac cases; but for general medical and surgical cases it cannot be said to have won a distinctly recognized position as an important therapeutic measure.

As a definite outcome of the war, however, it became necessary to provide gainful employment for enormous numbers of physically handicapped men returning to civil life. This resulted in the development in the British and Canadian, but notably in the French army, of an elaborate system of reconstruction hospitals which proved so surprisingly successful that it is now being introduced in varying degree into our general hospitals.

It is difficult to define occupation therapy in concise terms, but in general it may be said to refer to any productive work designed to lessen the patient's period of disability, whether the disability be caused by injury or disease. It possesses thus a distinct advantage over a mere game or other form of mental and physical diversion. A game, like checkers, for example, may divert the patient's mind from his ailment and promote recovery to such degree as the mind controls the body; but when the game is over, nothing remains. On the other hand, true occupation therapy involves *production*, i. e., making some product of more or less value which grows from day to day, and thereby much further interests and encourages the patient. This adjunct to medical and surgical treatment presents three phases: 1. If properly supervised by the physician or surgeon, it may be used to exercise disabled muscles, nerves or joints, and increase their function. 2. It diverts the patient's mind from his ailment and encourages him to do more and more for himself. 3. It may be utilized in many instances as a means of earning, while still handicapped and undergoing treatment, as I shall presently point out. It thus may acquire considerable economic importance.

Occupation therapy may be employed independently for any or all of the foregoing purposes, or it may be so directed from the outset as to merge into "vocational training," which may be defined as teaching the disabled patient some trade or occupation which he intends to follow continuously as a means of livelihood. To take a concrete example, a right-handed man, whose right hand is seriously crippled through cicatricial contracture following a burn, may be taught by means of occupation therapy to acquire increasing dexterity with the left hand, as in painting wooden toys or using a typewriter. He does not expect to remain a painter or a typist, but having acquired sufficient dexterity, he may take a course of vocational training in electric arc welding and secure a well paying job. This is a peculiarly well adapted trade, for the stick of solder may be held steadily in a crippled hand while the electric "torch" is manipulated with necessary dexterity by the other hand. Hence it is highly desirable that occupation therapy should be directed intelligently and prescribed with definite purpose. The time element with every industrial cripple is most important. He must never be permitted to lapse into a state of discouragement, or he may easily assume an attitude of hopeless dependence. Moreover, the "compensation" payments awarded under state statutes for treatment are for a limited period, depending, of course, on the original extent of the injury, and for every economic reason he must be restored to work as soon as may be.

The occupations which in this country thus far have received most favor may be divided into: First, those which are available while the patient is still in bed, convalescing after an injury or from a disease; such are making bead necklaces, weaving belts or suspenders, using a small portable typewriter, or making small baskets. Second, those which are followed when the patient is up and about, either walking or in a wheel chair; such are making toys, boxes, etc., with a jig saw, leather stamping, making larger baskets, painting various fancy articles, weaving blankets or rugs, and pottery molding. Such occupations are soon taught, are interesting and the articles produced may be of real usefulness and often of considerable artistic merit. None of them, however, are likely to offer fields of permanent employment, and it is to the more serious occupations of the vocational school that the patient must turn if he is to be taught a wage earning trade, provided always that he has been so injured as to be unfit to return to his original work. Among the favorite vocational trades may be reckoned linotyping, zinc plating, making artificial limbs, electric arc welding and some phases of "movie" production or exhibition. Some of these trades, moreover, may be available only for those whose lower limbs are handicapped, not the upper limbs.

OCCUPATION THERAPY FOR THE CONVALESCENT

Quite different from occupation therapy for the injured is the problem how far it may be useful for the convalescent from an acute disease. Many general hospitals are now opening occupation therapy departments more or less at random or in an experimental way. In such cases statistics show that the average duration of stay in the hospital, for each patient, is about three weeks: not time enough to learn to complete many of the usual "occupation" products. Take, for instance, the ordinary case of a poor woman recovering from a mild pneumonia. She has four small children at home, "keeps house" and is on her feet all day long over the washtub, range or cradle. She never knew a real day's rest in her life. How absurd to hurry her out of bed to keep her "occupied"! The one thing she needs is rest and plenty of it. Or, if diversion is required, any kind hearted person might sit down by her bedside and play checkers with her, without putting the hospital to the expense of providing materials and a teacher of occupation therapy. On the other hand, it may do some neurasthenic patient good to learn to make a few simple baskets to take home to show with pride to her friends. But all this sort of thing is more or less of an amateurish type. What I wish to emphasize is that a hospital organization desiring to install an occupation therapy department should, before going into the expense of providing rooms, materials and teachers, determine the actual needs of the situation. Furthermore, the active interest and cooperation, of both the medical staff and the social service department, are essential if time and money are not to be wasted. There should be, by now, sufficient experience available on which to base more systematized work. It should be determined more definitely what kinds of "occupation" are best adapted for what groups of cases, and particularly whether some special kind of article may not be produced having real value and acquiring a reputation so that the occupation therapy department may be made self-supporting. Records should be tabulated showing the results of all "occupation" work, and through a "follow-up" system a better idea should be obtainable as to how much it all really amounts to. Thus might one refute the opinion expressed to me recently by a member of the board of education connected with the trade schools that "the whole thing is a passing fad which will be over in ten years at most." I myself dissent from this opinion, and believe that occupation therapy, now in a formative stage as regards system, has

come to stay and prove of increasing benefit. But this can result only from cooperation among those interested, and comparison of results. Without constant oversight and support from the physician and surgeon it is doomed to ultimate failure, and without coordination, in many instances with subsequent vocational training, it will fall far short of its best results.

It should be emphasized also that much depends on the personality of the instructor, and the ability to deal with difficult patients tactfully. Many an industrial employee who has worked hard all his life, perhaps with heavy machinery, sees no reason why he should be invited to string beads or paint a yellow tomcat for a toy! Why, he thinks, should he not enjoy to the full his leisure, lounge about in the corridor smoking surreptitious cigarets and comparing his accident with that of his neighbor? This, in fact, is what he is left to do in many of our general hospitals. With the maimed soldier, undergoing reconstruction treatment and drawing good pay from the government meanwhile, the occupation system is often still more difficult to carry on.

THE RECONSTRUCTION HOSPITAL

These problems we have quite successfully solved in the newly reorganized Reconstruction Hospital at One Hundredth Street and Central Park West, New York City. This institution began more than two years ago as a war service under the name of the Clinic for Functional Reeducation for the rehabilitation of the disabled soldiers, sailors and marines, and more than 3,300 patients already have been treated. From the outset many industrial accident cases also have been treated, and thus an unusual opportunity was presented of developing occupation therapy with patients of varied classes. Recently the organization of the Demilt Dispensary and the Park Hospital (formerly the Red Cross Hospital) have joined forces with the clinic and been reincorporated with it under the title the Reconstruction Hospital, where the lessons learned through war service are to be applied for the treatment of industrial accident cases by means of operation, physiotherapy and occupation therapy. An affiliation also has been created with the Institute for Crippled and Disabled Men, which is devoted to vocational training, thus bringing four institutions together for the purpose of furnishing a complete and logical system of treatment.

I have referred to the economic phase of occupation therapy, meaning adaptation of the work to making salable products of considerable value. In the Reconstruction Hospital the patient is taught to make articles, such, for example, as woven woolen blankets, garden baskets, scrap baskets and tea trays, which are disposed of at periodic sales, and the money received is given to the patient, only the cost of materials being deducted and a small percentage applied toward the salaries of the expert instructors. The complete system is as follows: The injured patient receives first aid treatment and undergoes any subsequent operation that may be necessary. While in bed his occupation therapy is begun, and he no longer regards stringing a bead necklace or belt as below his dignity when he learns that he can earn $10 or $15 by its sale toward the support of his family. When able to be out of bed he goes into the occupation therapy rooms where more advanced or heavier work is provided for him, always under the general supervision of one of the surgical staff and the direction of an expert teacher. When his physical rehabilitation is completed he is referred to the vocational training department, where he may be fitted for a permanent trade and the employment department endeavors to place him with an employer. In case the patient is an ambulant one not requiring hospital bed care, but living at home, a "follow-up" system is operated through cooperation with the social service department to see that he does not waste his time, for there is little use in expending so much effort unless the ultimate goal is reached, of *putting the injured man back on the job* with the least possible delay.

CONCLUSION

I would emphasize again the fact that if occupation therapy is to be of enduring service it must be prescribed and supervised with as much care by the physician and surgeon as that bestowed on any branch of physiotherapy. Where the service is sufficiently large to warrant it, it would be well to appoint a visiting psychiatrist to study the patient's mentality and personal equation toward the end of selecting for him such occupation as he may best be adapted for. This was done in some of the French reconstruction hospitals with decided advantage to all concerned.

Meanwhile, better cooperation should exist between the institutions concerned in providing occupation therapy toward the end of standardizing methods and making marketable products.

142 East Sixty-Second Street.

Book Notices

EPIDEMIC RESPIRATORY DISEASE. The Pneumonias and Other Infections of the Respiratory Tract Accompanying Influenza and Measles. By Eugene L. Opie, M.D., Colonel, M. R. C., U. S. Army, Professor of Pathology, Washington University School of Medicine; Francis G. Blake, M.D., Major, M. R. C., U. S. Army, Associate Member of the Rockefeller Institute for Medical Research; James C. Small, M.D., Bacteriologist, Philadelphia General Hospital, and Thomas M. Rivers, M.D., Associate in Bacteriology, Johns Hopkins University. Cloth. Price, $6.50. Pp. 402, with 33 illustrations. St. Louis: C. V. Mosby Company, 1921.

This book deals with the bacteriology and pathologic anatomy of the respiratory infections, especially pneumonia, accompanying influenza and measles. It is based on observations made by the authors while in the army and assigned to the study of the pneumonias prevalent in Camp Funston and Camp Pike, and on studies of the lesions later in the pathologic laboratory of Washington University School of Medicine. There are seven chapters and an appendix. In Chapter 1, Blake, Rivers, and Small discuss the etiology of influenza, and they conclude that "consideration of all the evidence available makes it seem highly probable that *B. influenzae* is the specific etiologic agent of epidemic influenza," a conclusion that has not received any support by subsequent investigations. Chapter 2 (Blake and Rivers) deals with clinical features of influenza and the bacteriology of the associated bronchitis and pneumonia, and in Chapter 3 the four authors discuss secondary infection in the ward treatment of influenza and pneumonia. Chapter 4 (Opie, Blake and Rivers) takes up the pathologic anatomy (the authors have it "pathology," which is using the word in a narrower sense than it should have) and bacteriology of pneumonia after influenza. Chapters 5 and 6 are devoted to secondary infection in the ward treatment of measles and to the pathologic anatomy and bacteriology of pneumonia following measles. Chapter 7, by Opie, gives a summary of the work and conclusions. The appendix contains an account of the experimental inoculation of monkeys with influenza bacilli and other organisms. The work is of special interest to all students of acute respiratory infections of an epidemic nature; it emphasizes the value of postmortem examinations in the understanding of such diseases; and the compelling necessity of isolation and special care to prevent the spread of infection in the treatment of streptococcus and other forms of pneumonia. Special provisions must be made in military and similar hospitals to avoid overcrowding, and the physicians in charge should have special instruction and training in the organization and conduct of wards for pneumonia of all forms. Finally, it may be pointed out that there is still much to learn concerning the clinical manifestations of the different kinds of pneumonia, and that there is abundant room, and even demand, for the time-honored method of comparing the clinical course

of the disease with the changes found at necropsies, supplemented by bacteriologic studies and other forms of investigation during life as well as after death.

AERZTE-BRIEFE AUS VIER JAHRHUNDERTEN. Herausgegeben von Dr. Med. Erich Ebstein. Paper. Price, 14 marks. Pp. 204, with illustrations. Berlin: Julius Springer, 1920.

Among the many hobbies to which physicians devote themselves and their spare time is that of collecting. Some collect large fees, more collect bad debts, many collect low golf scores, and a few collect items of medical historical interest, such as first editions of rare medical books, and pictures. Dr. Ebstein collects autographs and original letters of famous physicians. In his preface he calls attention to the fact that Prof. Dr. Ludwig Darmstaedter collected a large number of important letters which he presented to the library in Berlin, and that this collection now totals from 50,000 to 60,000 letters, the catalogue alone occupying 997 pages. From various sources, Dr. Ebstein has gathered the interesting letters occupying this volume. They are presented in the language in which they were originally written, most of them in German, but many, such as those by William Harvey, Edward Jenner, Charles Bell, William Beaumont and Joseph Lister, in English. There are also a number of important French and Italian names among the letters presented. The book opens with a statement by Paracelsus in Latin dated about 1563. There follows a letter from Vesalius to Gasser on the subject of aneurysm. Falloppia writes in 1548 to Cosimo accepting an appointment at Pisa. William Harvey writes to Lord Fielding in 1636 and to a physician of Haarlem in 1657, a year before his death:

An Dr. J. Vlackveld, Arzt in Haarlem!

Learned Sir,—Your much esteemed letter reached me safely, in which you not only exhibit your kind consideration of me, but display a singular zeal in the cultivation of our art.

It is even so. Nature is nowhere accustomed more openly to display her secret mysteries than in cases where she shows traces of her workings apart from the beaten path; nor is there any better way to advance the proper practice of medicine than to give our minds to the discovery of the usual law of nature, by careful investigation of cases of rarer forms of disease. For it has been found in almost all things, that what they contain of useful or of applicable, is hardly perceived unless we are deprived of them, or they become deranged in some way. The case of the plasterer to which you refer is indeed a curious one and might supply a text for a lengthened commentary by way of illustration. But it is in vain that you apply the spur to urge me, at my present age, not mature merely but declining, to gird myself for any new investigation; for I now consider myself entitled to my discharge from duty. It will, however, always be a pleasant sight to see distinguished men like yourself engaged in this honourable arena. Farewell, most learned sir, and whatever you do, still love

Yours, most respectfully,

London, April 24, 1657. WILLIAM HARVEY.

The only American letter—although there is one from Paul Ehrlich to Christian Herter—is the following example by William Beaumont:

United States of America,
City of New York, 17th April, 1833.

Prof. Jacob Berzelius, Stockholm, Sweden.

Sir: I do myself the honour, at the suggestion of your worthy and scientific friend and correspondent, Prof. Silliman, of transmitting for your consideration the accompanying papers and a quantity of pure gastric juice taken from the Stomach of a man in perfect health and vigor, and doubt not the importance of the subject and the interest it may excite will be sufficient apology for thus obtruding upon your notice. Profr. Silliman's communication will suggest to you the general nature and importance of the subject.

From the accompanying number of the Medical Recorder, Page 14th and sequel, you may learn the origin and early history of the case, and in the following pages of this sheet I shall endeavour to give you a concise view of what has been seen and done by way of experiments and observation on the Gastric fluid and functions of Digestion. [Describes the accident and the nature of the wound.]

The Gastric juice I sent you is also extracted this way through an appropriate caoutchouc tube; not in free and abundant quantities, but by slow distillations from the very minute papillae of the surface of the villous membrane—requiring much time, patience and address to obtain it in small quantity. Not more than 1½ or 2 oz. can be extracted after lasting for any period, and even this quantity requires 25, 30 or more minutes for its extraction. Numerous experiments and observations have been made in this case within the last two or three years upon the process of digestion and the chymefication of different kinds of aliments, both in the Stomach and out of it. The relative solubility in this Gastric fluid of many kinds of alimentary substances, both animal and vegetable, have been fairly tested, the comparative time and different facility of chymefication ascertained, and the natural and varying temperature of the system determined by accurate observations of the Thermometer, placed in the cavity of the Stomach, during abstinence and repletion. Various kinds of alimentary substances have been submitted to the action of this fluid, and it is found capable of completely dissolving them all, out of the stomach, when contained in a glass phial and placed upon a sand bath of the temperature of the Stomach—100 Fahr. Even solid bone, cartilage, tendon down to the softest textured aliments are completely chymefied and dissolved when submitted to the Gastric juice in bottles and kept agitated in a temperature equal to the natural warmth of the stomach; varying however, in rapidity and perfection in proportion to the healthfulness of the secretion, purity of the gastric fluid, and the solidity, quality and peculiar nature of the aliment. Thus artificial chymefication of many kinds of food in this peculiar fluid has been fairly demonstrated, its powerfully solvent and antiseptic properties clearly ascertained and proven. But its accurate chemical analysis has not yet been accomplished, though several quantities have been submitted to some of the most eminent practical chemists of the United States. None have yet been able to obtain complete and satisfactory results.—Profr. Robley Dunglison, of the University of Virginia, is the only one who has fairly approximated or made returns of anything useful and important on this subject. Profr. Silliman has now, for the first time, a quantity under examination, from the investigation of which highly important results are anticipated.

For the 5 or 6 month last past I have been prosecuting a series of experiments and observations on the subject of Digestion by this Gastric fluid under the patronage of the Medical Departments of the Government, the results of which are now preparing, and will probably be published in the course of the ensuing autumn or winter, or so soon as an accurate and satisfactory analysis of this fluid, if it be practicable, can be obtained.

Should the subject be worthy of your notice, and the accompanying fluids and documents merit your attention, and you be so happy as to succeed in obtaining satisfactory analysis of it, I do most earnestly and respectfully desire and shall be greatly obliged to you to communicate the results of your investigations, soon as convenient, either to Profr. Silliman at New Haven, Ct., or to me, in the City of New York, by doing which you will doubtless confer a signal benefit on the American Medical public, greatly promote the cause of science, and confer honour and enduring obligation upon,

Your most respectful and obedient servant,

WM. BEAUMONT.

P. S. The man will continue with me. Should more of the fluid be required to complete the investigation and analysis, it will be rapidly transmitted upon the earliest indication from you. Any suggestion you may please to make will be happily reed. and attended to.

Much of the correspondence concerns Albrecht Haller and his colleagues. As one turns the pages and obtains a glimpse into the lives and sentiments of these great men of the past, he can only wish that the collection of letters were larger. The presentation, giving a brief biography of the physician, and frequently a personal photograph or facsimile reproduction of the letter, is all that one could desire.

THE SYMPATHETIC NERVOUS SYSTEM IN DISEASE. By W. Langon Brown, M.A., M.D., F.R.C.P., Physician with Charge of Outpatients, St. Bartholomew's Hospital. Cloth. Price, $4.25. Pp. 161, with illustrations. New York: Oxford University Press, 1920.

For the average practitioner the sympathetic system probably is not only a *terra incognita* but also a territory which he has no intention of invading. And yet the relations of this system to many organs and functions are intimate and important. Further, its relations to many diseases and disorders are gradually being recognized and evaluated. This little book is an excellent, up-to-date résumé of these manifold relations, as regards both normal and abnormal processes, and every practitioner will find something of interest, and probably of value, bearing on his daily work. The relations of the sympathetic nervous system to the endocrines and their disorders, to glycosuria, to the alimentary canal, to gastric and esophageal spasm, to digestion, to reflex dyspepsia and hyperchlorhydria and, of course, to diseases of the circulatory system, are some of the topics covered. The author believes that vagotonia has not been shown to be a clinical entity and that surgical shock is not a vasomotor disorder.

THE ESSENTIALS OF HISTOLOGY, DESCRIPTIVE AND PRACTICAL. For the Use of Students. By Sir Edward Sharpey Schafer, F.R.S., Professor of Physiology in the University of Edinburgh. Eleventh edition. Cloth. Price, $4.50. Pp. 577, with 720 illustrations. Philadelphia: Lea & Febiger, 1920.

The study of histology is fundamental. In it is revealed the real nature of living tissue. In gross anatomy the student sees the large parts of a machine; in physiology he sees it work. But the working is usually a process of destruction. It is a decomposition of substance liberating energy. It is spectacular and catches the eye. But dead matter decomposes. Only synthesis is vital. Only living matter reforms the substances destroyed in work, stores them up and grows. This process is hidden, silent and slow; but it is the real vital process. He who would understand living matter, its working and its changes in disease must study this, and he studies it in histology and embryology. Therefore these are fundamental; they inform all biologic study. The teacher or

author who leads a student to see in the structure of tissues these processes imparts to them scientific life. He who does not defrauds them. The author of this book, who was formerly president of the British Association for the Advancement of Science, takes the dynamic view. Throughout, he shows how the processes of growth and development go on. Perhaps that is one reason why the eleventh edition is demanded. This edition differs very little from the tenth; a few illustrations are replaced by others, some on cell structure, the elements in the blood, the pituitary gland, etc., and a few paragraphs have been added and some modified in accordance with recent research. It is twelve pages longer than the tenth edition. The book has always been limited to "essentials," but abundance of good illustrations are rightly regarded as essential. There are 720 of them in the 577 pages of text. There are constant references to fresh material with suggestions as to methods of study, to fresh material with encouraged to follow the easy road to reliable knowledge and learn by looking at the actual things. During many years the book has been of real service to students, and has evidently been appreciated.

PROPHYLAXE UND THERAPIE DER KINDERKRANKHEITEN MIT BESONDERER BERÜCKSICHTIGUNG DER ERNÄHRUNG, PFLEGE UND ERZIEHUNG DES GESUNDEN UND KRANKEN KINDES NEBST THERAPEUTISCHER TECHNIK, ARZNEIMITTELLEHRE UND HEILSTÄTTENVERZEICHNIS. Von Prof. Dr. F. Göppert, Direktor der Universitätskinderklinik in Göttingen und Prof. Dr. L. Langstein, Direcktor des Kaiserin Auguste Victoria Hauses zur Bekämpfung der Säuglingssterblichkeit im Deutschen Reiche in Berlin-Charlottenburg. Paper. Price, 36 marks. Pp. 607, with 37 illustrations. Berlin: Julius Springer, 920.

This book aims to show how the choice of treatment is influenced by various conditions. The authors state that they were guided particularly by personal views and experience. This is more or less evident on perusal of the text, which contains a sufficient number of rather apodictic statements which would be hard to support, as, for instance, the statement that it is always wrong to obtain obedience by reasoning. The book contains much that is good. It pays attention to the physical means necessary for the proper development of the child and for the correction of faults. The methods of treatment advocated in the various diseases are standard methods, and a fairly extensive armamentarium of drugs is given. In places, rather important methods are omitted. It is necessary to mention only a few examples: Oxygen is administered by a mask or funnel, or by tube into the stomach or rectum. It is much simpler and of greater advantage to introduce the delivery tube directly into the mouth. Furthermore, the methods of artificial respiration, introduced by Meltzer and others, should not be omitted. The treatment of pylorospasms by thick cereal feeding is too important to be disregarded. The administration of fluid by the intraperitoneal route should be given. Whether the methods employed in the treatment of patients with various diseases always meet the approval of the reader or not, the book is welcome, as it is devoted to treatment, and gives the methods which it advocates in a manner easily understood. A list of institutions devoted to the care of children is appended. It comprises Germany, Austria and Switzerland. This list is of not much use to the American physician, but there is urgent need of having such information easily accessible.

VITAMINES: Essential Food Factors. By Benjamin Harrow, Ph.D., Associate in Physiological Chemistry, College of Physicians and Surgeons, Columbia University. Cloth. Price, $2.50 net. Pp. 219. New York: E. P. Dutton & Company, 1921.

This is a popular presentation of the subject of vitamins, which is now apparently attracting as much attention from the lay public as from the medical profession. The style is popular and should be easily understood by any reader intelligent enough to be interested in the subject. It contains a fair presentation of what is now known about vitamins and also a consideration of the other factors of diet, and is complete enough to be of value also to the physician. The author has avoided the usual temptation in popular works of this sort to be dramatic or to stretch the facts, and hence can be recommended to patients who ask for a source of information on this popular topic. For the physician, value is added by the insertion of a section on references, giving the sources of the latest literature.

Medicolegal

Relation Between Physicians and Roentgenologists

(Runyan et al. v. Goodrum (Ark.), Feb. 21, 1921)

The Supreme Court of Arkansas not only reverses a judgment for $25,000 damages that was rendered in favor of plaintiff Goodrum for roentgen-ray injuries, but it also dismisses the case. The court says that it was alleged that the defendants were partners in the general practice of medicine and surgery, and that they owned and operated a hospital which had a roentgen-ray department under the supervision of a roentgenologist who was a physician and was assisted by a Miss Green that he said was as competent as he was, although she was not a physician. The plaintiff was a patient of the defendants at the hospital, and was seriously burned in the operation of the roentgen-ray machine by Miss Green. This gave rise to the important question whether, in an action by a patient against physicians and surgeons to recover damages for their alleged malpractice, caused by the alleged negligence of a roentgenologist whom they had employed to assist them, such specialist stands in the same relation to the physicians who employed him as if he had been another physician employed to give the patient necessary attention in their absence. No case was cited, and the court itself found none, deciding that exact question. But the court concludes that, because the science of roentgenology is so interrelated with the sciences of medicine and surgery in the diagnosis and treatment of human diseases, it should be classed in the same category with those sciences, and the roentgenologist must be placed in the same class with the physician and surgeon because of the peculiar knowledge and technic that he must possess, and because in the practice of his profession such knowledge and technic are dedicated almost exclusively to the aid of the physician and surgeon in the diagnosis and treatment of diseases of the human body. Furthermore, the roentgenologist, like the physician and surgeon, unless he expressly contracts to produce certain results, has the right to, and must at all times, act according to his independent judgment and discretion in the exercise of his skill and learning in the treatment of human diseases. The very nature of his profession and the character of his contract of employment involves this right. Such being the case, it follows that the relation of master and servant cannot exist between physicians and surgeons who are not roentgen-ray specialists themselves and the roentgen-ray specialist, or roentgenologist, whom they employ to assist them in the diagnosis and treatment of diseases. The fact that the roentgen-ray specialist for whose negligence recovery of damages was sought was working at the defendants' hospital in the roentgen-ray department equipped by the defendants for such work did not affect the character of employment between the defendants and Miss Green so far as the performance of her work was concerned. For illustration, would the Mayos, in whose roentgen-ray department more than 50,000 patients were examined in one year, be liable to any of these patients in damages for injuries caused by the negligence of their roentgenologists, because of the fact that they were maintaining a roentgen-ray department at their institution fully equipped by themselves instead of committing that work to roentgen-ray specialists on the outside? The court is convinced that they would not be liable unless they had been negligent, that is, had failed to exercise ordinary care to employ competent roentgenologists, and to furnish the proper apparatus. The difference between the Mayos and the defendants in these respects was only in numbers. Wherefore, it being admitted that Miss Green was competent, although she was not a graduate of medicine, the court holds that the defendants were not liable for her alleged negligence.

The next questions were: Was the screen used by Miss Green for making fluoroscopic examinations of the plaintiff defective, and, if so, were the defendants negligent in failing to exercise ordinary care to furnish a perfect screen, and was such negligence, if any, the proximate cause of the injury? The principles of law applicable to the facts of the case are well established. Since the defendants maintained a roentgen-

ray department at the hospital, it was their duty to exercise ordinary care to see that this department was equipped with such apparatus as was generally approved by roentgenologists as best adapted for the proper diagnosis and treatment of diseases; also, to exercise such care to provide competent specialists to do the work in that department. Ordinary care for the successful management of such institution means a very high degree of care because it has to do with the lives and health of human beings. The roentgen-ray machine of the highest type and manipulated by a competent expert is of inestimable value to mankind, but otherwise it is an exceedingly dangerous agency. This duty of the defendants to exercise ordinary care to employ competent roentgenologists and provide safe apparatus for their roentgen-ray department could not be delegated to another. If, therefore, there was in use in the defendants' roentgen-ray department a defective screen, which the defendants or their chief roentgenologist knew to be defective, or by the exercise of ordinary care should have known to the defective, and if the use of such defective screen was the proximate cause of the injury to the plaintiff, then the defendants were liable to her in damages. The chief roentgenologist, so far as the duty of furnishing the necessary apparatus was concerned, was the agent of the defendants, and his knowledge was their knowledge. For this purpose he was at all times under the immediate control of the defendants and could not exercise his independent judgment and discretion. But he manifestly did not regard the screen unsafe or dangerous, even though it might cause additional exposures. The jury should not be allowed to speculate on probabilities in the face of the positive testimony of the witness that he did not consider the machine unsafe or dangerous. Moreover, the court is of the opinion that, whatever may have been the defect in the screen, it was not the proximate cause of the injury to the plaintiff.

Nor does the doctrine of *res ipsa loquitur*, or the matter speaks for itself, apply in such cases, because the testimony showed that on account of the idiosyncrasies of the roentgen-ray machine one person of a certain type and temperament would be susceptible to a burn while another person of a different type, under the same circumstances, would not be burned. Moreover, it was shown that burns do occasionally occur, in the ordinary course of the exposure, in spite of the highest diligence and skill to prevent them.

No doubt the jury believed, and it was justified in believing, that Miss Green became interested and absorbed in explaining the mysteries of her science and art to the mother and father of the plaintiff, and thus unconsciously let the time go by for thirty or forty minutes while, with disastrous effect, the rays were penetrating the back of the plaintiff; but, while the occurrence was most unfortunate and deplorable, it follows from what has been said that the defendants were not liable.

An Invalid Ordinance Relative to Vaccination

(Tones et al. v. Independent School District of Des Moines et al. (Iowa), 180 N. W. R. 157)

The Supreme Court of Iowa says that on Aug. 18, 1918, the city council of the city of Des Moines, under the title of "An ordinance requiring the vaccination of schoolchildren and providing for rules, regulations and penalties for its violation," enacted an ordinance which provided:

> SECTION 1. It shall be unlawful for any teacher or person in charge of any of the public or private schools of the city to admit therein any pupil until such pupil shall have proved to the satisfaction of the local board of health, or the person selected by it for that purpose, that such pupil has been successfully vaccinated within five years prior thereto, or within such time as the local board of health may designate.

Section 2 made it the duty of the officers of the local board of health to promulgate the necessary rules and regulations for carrying out the terms of said ordinance; and Section 3 made the violation thereof a misdemeanor punishable by a fine not exceeding $100 or imprisonment for a period not exceeding thirty days.

Section 681 of the Iowa Code of 1897 provides that "no ordinance shall contain more than one subject, which shall be clearly expressed in its title." A casual examination of Section 1 of this ordinance discloses that it contains no provision requiring the vaccination of schoolchildren, but that it makes it unlawful for any teacher or other person in charge thereof to permit schoolchildren to enter or attend the public schools who failed to produce a satisfactory certificate of successful vaccination within the period stated. Not only does the title fail to express clearly the subject of the ordinance, but it is wholly inconsistent therewith. The penalty of the ordinance may not be inflicted on schoolchildren refusing to submit to vaccination, but on teachers or others in charge of the schools who admit them without the required proof of successful vaccination. The failure of the title to express clearly the subject of the ordinance is fatal to its validity.

Counsel referred to the ordinance as having been enacted by the city council acting as a board of health. Manifestly, the city council sitting as a board of health has no power to enact or repeal ordinances. It is true that the Iowa statute provides that the mayor and city council in cities and towns shall constitute a local board of health, and that the city clerk shall be the clerk thereof; but their duties and functions are wholly separate and independent, and must be so exercised.

Doubtless the emergency which was believed to exist has long since passed, and no further proceedings are therefore necessary in this court or the court below to secure the admission of the plaintiffs to the public schools, and none will be ordered.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Boston, June 6-10.
American Association for Thoracic Surgery, Boston, June 6.
American Association of Anesthetists, Boston, June 6-8.
American Neurological Association, Atlantic City, June 13-15.
American Ophthalmological Society, Swampscott, Mass., June 14-15.
American Orthopedic Association, Boston, June 2-6.
American Proctologic Society, Boston, June 3-6.
American Psychopathological Association, Atlantic City, June 11.
American Radium Society, Boston, June 6-7.
American Surgical Association, Toronto, Canada, June 14-16.
Association for the Study of Internal Secretions, Boston, June 6.
Maine Medical Association, Bangor, June 28-29.
Montana, Medical Association of, Billings, July 13-14.
National Tuberculosis Association, New York, June 13-17.
Nevada State Medical Association, Elko, June 24-25.
Southern Minnesota Medical Association, Winona, June 27-28.
Tri-State Meeting (Oregon, Washington and Idaho), Portland, Ore., June 30-July 2.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Fifteenth Annual Meeting, held in Brooklyn, May 3-5, 1921

(Concluded from page 1528)

SECTION ON SURGERY

DR. LEDRA HEAZLIT, Auburn, in the Chair

Tumors of the Kidney

DR. THOMAS F. LAURIE, Syracuse: A great majority of these tumors are hypernephromas. Metastases are distributed through the blood stream. Recurrence is common. Three cardinal symptoms are hematuria, tumor and pain. Hematuria occurs in 38 per cent. of the cases. Often it is so profuse that it causes clot formation in the ureter, with resulting renal colic. It is difficult to determine the difference between tumor of the kidney and that of other viscera; also tumors may be so small that they may not be palpable. Pain occurs in 32 per cent. of the cases. Other symptoms may be dilatation of the superficial blood vessels, caused by pressure from the growth, and, perhaps, toxins. The diagnosis may be made possible by cystoscopy, roentgenoscopy, complete urinalysis, chemical and bacteriologic, and determination of kidney function. Treatment is by nephrectomy, provided there is enough kidney tissue on the other side to maintain the life of the patient, and when there are no metastases. Such removal may be supplemented by radium therapy or roentgenotherapy.

DR. JAMES N. VANDER VEER, Albany: Early disturbance of urination is often neglected. Even urinary disturbance of a few days, such as burning, heaviness, interruption in evacuation, pain, pus or sediment or microscopic blood, should be noted. The cystoscopist should be the operating surgeon, or at least his right hand man. Roentgenography is easier than cystoscopy for many physicians. The pathologic condition of the growth can be determined by frozen section, and that will decide the amount of surgical intervention required. No tumor should be operated on except in a very modern and fully equipped hospital. Intervention is now accompanied with roentgen-ray or radium irradiation. Some operators make use of diathermy. Radium therapy, while useful, has the disadvantage of being costly and not always available.

DISCUSSION

DR. J. B. CROSS, Buffalo: Bladder tumors are likely to metastasize slowly, owing to the small number of lymphocytes. The fulguration method gives good results in some cases. Those tumors that do not respond to fulguration are probably malignant. The difference between clinical and pathologic findings is frequently noticeable. One type clinically benign is reported by the pathologist as malignant. Other tumors reported benign, and seemingly benign, later prove to be malignant. A new form of treatment is by the injection of millicurie seeds into the tumor, through a hollow needle.

DR. JAMES N. VANDER VEER, Albany: A patient was under observation for pain in the right side of the abdomen which I thought was a gallbladder condition. There were no kidney symptoms. Somebody else performed a nephrectomy later. The surgeon found a hypernephroma the size of a hickory nut at the upper pole. The patient was allowed to go three months with a mass in the left side of the abdomen as big as a baby's head. The attending physician said it was a big kidney and that the patient probably had only one kidney. Then there was a hemorrhage and the patient came to me suffering intense pain. A nephrectomy was performed for kidney tumor. The patient was free from pain a year and a half; then he died suddenly. There are cases in which the hypernephroma involves the capsule not invading the pelvis. There is no hemorrhage, but operation is indicated.

DR. ABRAHAM HYMAN, New York: Cases are examined too little. The laity, and physicians also, are not alive to the seriousness of hematuria. The doctor tells the patient that the hematuria does not amount to much. Twenty five per cent. of these tumors are probably malignant. The high frequency current can be used in some cases, but not in fleshy growths or multiple papillomas. Dr. Beer has elaborated an operative technic directed to avoid implants of tumor on opening the bladder.

DR. THOMAS F. LAURIE, Albany: After all methods of examination have been used, exploratory operation is justifiable. If the tumor does not invade the pelvis, the pyelogram is worthless. In a normal kidney or ureter, a forcible manipulation might well provoke bleeding. If bleeding were found on both sides, it would prove nothing. In regard to the fulguration method, recurrences are seen sometimes. These patients should not be allowed to drift. When radium can be used, it should be. I have one patient alive after five years, with one third of the bladder removed.

Surgical Aspects of Disease of the Gallbladder and Biliary Passages

DR. ABRAHAM O. WILENSKY, New York: There is no method or process, at present, by which gallbladder disease can be ascertained at an early date. The history gives the most important data. The clinical types vary: (1) one or more attacks separated by healthy periods; (2) attacks accompanied by pain and ill health; (3) dyspepsia and gastric symptoms; (4) right sided abdominal pain suggestive of dislocated kidney, or chronic appendicitis; the presence or absence of biliary colic should be diagnostic; (5) single acute inflammatory condition with pain in the upper right quadrant, with nausea and vomiting, with tenderness near the gallbladder. These are the acute empyema cases, not necessarily associated with stones. The treatment in gallbladder disease is surgical. Medical treatment is simply palliative, and operation should be performed as soon as the diagnosis is established. Cholecystectomy should be performed whenever possible, and cholecystotomy only when nephritis or myocarditis or some similar complication precludes the added risk. Drainage is simply a palliative measure. In cases in which there is disturbance of cholesterin metabolism, bile drainage relieves the excess of cholesterin in the body, as in pernicious vomiting of pregnancy. In some cholelithiasis cases it is difficult to determine whether the stones account for the symptoms, and whether some recur, or are overlooked.

DISCUSSION

DR. J. B. CROSS, Buffalo: It is now known that cholecystitis and cholelithiasis are largely due to bacteria. Rosenow has shown that there is a selective action of certain bacteria. Gallbladder infections become systemic and are sometimes associated with pancreatic involvement. Cholecystectomy, instead of cholecystotomy, is safe and quicker. The common duct should not be ligated, and abnormalities of the cystic duct and arteries should be recognized. With early operation the mortality can be reduced to 2 per cent., and less damage will be rendered to other organs. Any drain is better than no drain.

DR. W. D. JOHNSON, Batavia: I advise draining the gallbladder. This cures the condition in forty-eight hours.

DR. J. E. SADLIER, Poughkeepsie: In cases of neglected gallbladder disease, there can be an excessive drainage through the common duct, producing dehydration which can become very serious to the patient, amounting to as much as 12 pints of fluid per day for three days.

DR. A. H. AARON, Buffalo: I made an anastomosis between the duodenum and the hepatic duct in a case of complete obstruction of the common duct in which bile had been suppressed entirely for three months. The patient had had nine operations already, and refused to have another. As a last resort, magnesium sulphate, dry, on the tongue, was tried, with enough water to wash it down. After four days bile began to flow and the patient was relieved.

DR. EDWIN BEER, New York: I have had the same experience in common duct surgery as Dr. Sadlier had. I have seen an enormous flow of clear bile which I took to be pancreatic secretion. Inadequate drainage of the common duct is wrong; there are good reasons for draining it for a considerable time. Secondary drainage has been overlooked, and intrahepatic stones can pass through the drainage tube.

DR. A. O. WILENSKY, New York: I have seen drainage of duodenal juice through the common duct from a fistula, with one stone coming from a paralyzed sphincter. The sphincter being incompetent, the duodenal juice leaks out. This is due to traumatism during operation with secondary necrosis. Patients will come back with symptoms after operation, but these can be controlled by simple attention to diet.

DR. MARSHALL CLINTON, Buffalo: In one case of pernicious vomiting of pregnancy, the patient could not even retain water. I said that draining the gallbladder should prove the facts. The gallbladder was filled with tarry bile; there were no stones; there was a great deal of trypsin. Forty-eight hours after drainage, vomiting stopped. In other patients it has been observed that trypsin is never found, except in those with nausea. The trypsin may be pushed back from the pancreas.

JOINT MEETING WITH SECTION ON NEUROLOGY AND PSYCHIATRY

DR. MICHAEL OSNATO, New York, in the Chair

The Accomplishments of Intracranial Surgery

DR. CHARLES H. FRAZIER, Philadelphia: Local anesthesia should be deprecated in cranial surgery, as it is too trying for the surgeon and the patient. In the war, cranial defects were common, and experience taught a return to the original technic of pericranial grafting. Otologists usually perform operation on brain abscess and often are responsible for their occurrence if middle ear infection is neglected. To detect these lesions early, two points are necessary: (1) intimate knowledge of the parts concerned and (2) intimate study of the literature as to verified point of origin. The Lemaitre technic is very useful. A fine exploratory needle is first

introduced; then gradually fine drainage tubes are inserted to take its place, ending with drainage tubes of larger caliber. Thus the meninges are protected and the subarachnoid space is lined with a wall of adhesions, and secondary meningitis does not occur. In pituitary body disturbance there are loss of vision, headache and pressure phenomena. The question is how best to restore or conserve vision. Often the patient does not come till too late, and vision is lost. One must determine how far the lesion has progressed, whether beyond the sella or not. Two routes are used: the transfrontal route and the sphenoidal route. The latter gives a lower mortality, but the former exposes the process better. The roentgen ray or radium, combined with decompression, gives the best results in pituitary lesions. In trigeminal neuralgia, the picture is usually clear cut, but there may be some atypical cases. One should be sure of the diagnosis before resorting to radical operation. Sometimes cocainization of the sphenopalatine ganglion by the Sluder technic is indicated. Some of these obscure neuralgias have their origin in the sympathetic system, which borders on the trigeminal. Either the motor or the sensory root can be sacrificed, as occasion demands. Brain tumors are of many kinds, and varied as to structure and location. The epitheliomas differ from gliomas, for instance, and location can be tentorial, subtentorial, cerebellar or in the acoustic roots. A technic has been tried of injection of air into the ventricles to see whether they are dilated or collapsed. Another plan is that of intravenous injection of saturated salt solution to relieve pressure by reducing brain volume. Two points are important; reduction of pressure and prevention of hemorrhage. Autotransfusion of 600 c.c. of citrated blood will often prevent untoward reaction after operation. The removal of this amount from a healthy person previous to operation makes little difference, and it can be kept in a refrigerator until needed. Closure of the defect can be done with thin scalelike layers of periosteum of the outer table.

DISCUSSION

DR. A. W. ADSON, Rochester, Minn.: The question of the transfrontal versus the transphenoidal operative route is a difficult one to answer. The transfrontal route has a higher mortality; the transsphenoidal route, combined with radium, offers more than any other type of surgery. Radium will have a definite future in brain surgery.

DR. CHARLES A. ELSBERG, New York: As years go on I have performed fewer decompression operations, and then only as part of the operation for removal of the tumor. Decompression never relieves a patient in stupor, it often makes him worse; in fact, he never wakes up from the operation. In the subtemporal decompressions, the patient will be left with a huge bump on the side of the head and will not thank the surgeon for it. In the infiltrating growths, decompression will not benefit eye symptoms, or relieve hemorrhage or hemiparesis. One can accomplish more by permanent drainage of the ventricles.

DR. CHARLES H. FRAZIER, Philadelphia: I am glad that Dr. Adson advised radium in pituitary lesions. I think there is a future for that treatment. The pituitary differs from the thyroid, but with adjustment of technic, radiation can be used. Dr. Elsberg mentioned the limitations of cerebral decompression. It is of use when there is no growth, or in early cases; but in advanced cases, removal of the tumor is essential.

Spinal Cord Surgery

DR. CHARLES A. ELSBERG, New York: Pain in spinal cord disease is very significant, and leads to many diagnostic mistakes. The gastric crises of tabes have been mistaken for peptic ulcer, and many abdominal symptoms occurring in spinal cord disease are not correctly recognized. Patients are now being operated on earlier for spinal tumor, and brain tumors are recognized before the patient gets choked disks. Still diagnostic errors are made. A young girl, supposed to have appendicitis, was found to be suffering from cord pressure from an old Potts' disease. A woman had left iliac pain. The appendix was removed; the kidney was sewed up; the ureters were catheterized. As she still complained of pain, she was labeled "hysterical," and, by and by, found her way to a neurologist. Examination discovered exaggerated ankle reflexes, and slight disturbance of the plantar surface of the feet. Spinal cord tumor was suspected, and the patient operated on. A lower dorsal tumor was removed, and the patient got well. A woman with pain in the right hypochondrium, a suspected cholelithiasis case, was operated on and a few stones were removed, without benefit; appendix removed, without improvement, and right inguinal hernia treated without result. The woman was then considered "neurasthenic" and sent to a neurologist. Slight neurologic signs were found suggestive of spinal tumor, and at operation three small tumors were found lying on three nerve roots. Removal caused complete recovery. A patient with coccygeal and rectal pain, who underwent various operations on the rectum without result, proved to have a tumor of the roots of the cauda equina. These cases point to the necessity of thinking of the spinal cord in cases of pain of obscure origin, and of making at least a superficial spinal examination.

Surgical Treatment of Brachial Plexus Injuries

DR. A. W. ADSON, Rochester, Minn.: These lesions may vary from involvement of one muscle or all, and from slight compression of one nerve, to complete laceration of the entire group of the sheath and fasiculi, with evulsion of the nerves. The relation to long and difficult labor is definite. Of forty-five patients, twenty-seven were forceps deliveries, with three breech presentations, thus showing that there was traction on the head before birth. Other cases in adults are caused by war wounds, and stab wounds in the arm. The greatest amount of recovery takes place in young children under 2; these recover 56 per cent. of function. In older cases surgery holds out very little hope in brachial plexus cases.

DISCUSSION

DR. ALFRED S. TAYLOR, New York: My views differ from those of Dr. Adson. In one case of difficult labor, with the head not engaged, and a deformed pelvis, I was obliged to make traction on the shoulder, and I felt the right brachial plexus give way, and there was a birth palsy lesion. The child died two hours later, and we had the body for examination. After hardening in formaldehyd, examination was made and we found the typical lesions described by Park and Taylor, so that traction was felt to be one of the chief factors. The lesion is one of the sixth cervical in 30 per cent. of cases. In regard to age, most cases show improvement under 2 years. If it occurs after 5, it is due to neurogenesis. The posterior dislocation of the shoulder doubtless occurs later, as a consequence of the birth lesion. Of 30,000 cases at the Lying-In Hospital, Dr. Painter never has seen one of posterior shoulder dislocation. In adult cases the result of treatment is not as good as in children. The best results are obtained from putting the arm in as good a position as possible at the time of birth, giving the traumatized nerves opportunity for recovery.

Cervical Ribs

DR. ALFRED S. TAYLOR, New York: This deformity occurs in one in 300 cases; is usually bilateral, and varies in size from a fully developed rib to an exaggeration of the transverse process. The trouble is occasioned by pressure on the seventh and eighth cervical, and first dorsal nerves, passing over the bladelike edge of the rib. In round ribs there are not so many symptoms. The treatment is operative, but care must be taken not to do damage to the brachial plexus.

The Surgical Problem of Nerve Defects

DR. BYRON STOOKEY, New York: Nerve transposition, passing the nerve through a course shorter than normal, nerve stretching and nerve grafting are the accepted methods to be used in reuniting divided nerves. Each method has its limitations.

DISCUSSION

DR. A. W. ADSON, Rochester, Minn.: Overstretching of the nerve is dangerous. In trigeminal neuralgia, one relieves the pain by peripheral evulsion. I have not been successful with nerve grafting. One must not forget the value of orthopedic measures, such as tendon transference, and arthrodesis.

DR. ALFRED S. TAYLOR, New York: I agree with Dr. Adson that the results in peripheral nerve grafting are unfavorable.

Interpretation of the History in Surgical Affections of the Right Upper Quadrant

DR. CHARLES G. HEYD, New York: Of 100 people complaining of gastric distress, twenty will have symptoms due to organic disease; forty will have disease remote from the stomach; forty will have some pathologic process outside the abdomen. The differential diagnosis must be between carcinoma, appendicitis, pancreatitis, and lesions of the the kidney, gallbladder and colon. Correlation of the history with the symptomatology is an aid in diagnosis.

Physiologic Factors Underlying Operations on the Stomach and Duodenum

DR. W. WAYNE BABCOCK, Philadelphia: Surgeons often make gross physiologic errors. How many men have given meat broths, thus increasing acid after abdominal operations; have had the patient sit up in bed with ruptured varix of the leg; have raised the head in cerebral hemorrhage; have given strychnin or alcohol for shock; have given atropin in opium poisoning; morphin for the delirium of uremia; salt solution in renal embarrassment; a protein diet in thyrotoxicosis; have increased the difficulty in ether anesthesia by telling the patient to "take deep breaths"? These are only a few of the common mistakes. The physiology of the stomach is just beginning to be understood.

The Reflex Stomach from the Surgeon's Point of View

DR. GEORGE D. STEWART, New York: The stomach is the spokeman for many organs, and its language is either motor or secretory. The motility of the stomach is more important than the chemistry, because while gastric response by secretion is interesting, it does not tell where the stimulus is coming from. To understand reflex paths of the stomach we must understand the nerve supply by the autonomic or vegetative nervous system. While we should be better physiologists than we are, we can get into too much complication about the reflexes, and if we stick to the history we shall do better. The reflexes are so complicated and so interlaced in action that they may be produced at any level. There are many conditions causing the stomach reflex, outside the canal, such as disease of the generative organs in the female; mobility of the kidney; disease of the central nervous system; toxemias; tuberculosis; syphilis; cardiovascular-renal disease; and in the canal there may be duodenal ulcer; cholecystitis; Meckel's diverticulum; chronic ileocecal conditions; gallbladder disease, and appendicular lesions. Hypermotility is associated with gallstones in 68 per cent. of cases; with duodenal ulcer in 75 per cent.; with chronic appendicitis in 55 per cent. Study of the cases at Bellevue Hospital with gastric symptoms showed that all such cases gave clearly diagnostic histories, which should classify the case, so that while one should bear in mind the reflexes, one should not be confused by them. The term "reflex stomach" should be abolished from the literature, as it often is an excuse for laziness and inefficiency. A careful study of the history in intestinal, gallbladder and appendical cases will lead to correct diagnoses and avoid many reflex mistakes.

DISCUSSION

DR. PETERSON, New York: While history taking is an art, the interpretation of the history is a science. It behooves us to take as good a history as possible and to interpret it accurately, but not to neglect to take into consideration the reflex conditions that Dr. Stewart thinks so little of.

DR. W. D. JOHNSON, Batavia: Where does Dr. Babcock get all his physiology? It is not in the textbooks. Of 4,000 experiments quoted in one book, less than forty were productive, so that we want to go slowly in applying these experiments to human physiology.

DR. E. M. STANTON, Schenectady: The stomach reflexes are associated with many different conditions, and many patients have subjective symptoms referred to the gastro-intestinal tract, the chief of which is vomiting. Notwithstanding the enormous number of laboratory tests, and the availability of the roentgen ray, the important fundamental thing is the careful clinical history of the case. The successful interpretation of the history lies in the ability to pick out the relevant from the irrelevant. Some symptom in the clinical history points clearly to the diagnosis.

DR. F. W. LEE, New York: The history depends on the man who takes it. The question is, Are you going to let the patient tell you his story, or are you going to question him and let him say what he thinks you want him to say?

Treatment of Arthritis by Drugs

DR. SAMUEL W. LAMBERT, New York: Chronic arthritis (excluding tuberculosis, syphilis and gonorrhea) is usually of streptococcal origin, and is a chronic disease with acute exacerbation. There are general systemic reactions with the attack. The primary source of infection must be treated. Drugs useful for intestinal disinfection are phenol combinations with betanaphthol, salicylic acid, phenyl salicylate, bismuth subcarbonate or cereum oxalate. From three to six lemons a day, diluted in water, with sodium bicarbonate, are very valuable. Treatment of the joints is by acetylsalicylic acid, in 40 grain doses, or salicylates in 60 grain doses. The coal tar products relieve pain. Lead acetate dressings are helpful. Diet includes restriction of purins and carbohydrates, but otherwise maintaining nutrition. The efficacy of specific vaccines and serums is doubtful. Sterilized milk injections often give better results. The reaction to the foreign protein is nonspecific. There seems to be no reason for giving injections which produce a chemical typhoid fever or chemical intestinal toxemia, when the patient is already burdened with the toxins of arthritis.

Special Treatment of Arthritis

DR. CLARENCE E. COON, Syracuse: Sometimes treatment produces spectacular results in arthritis, sometimes very poor results, and in any case one must do what one can to relieve pain and prevent deformity. Thus, the wearing of a rigid corset in spondylitis, or an abdominal support in visceroptosis. The knees can be helped by preventing extremes of motion. The metatarsal arch can be supported. The lack of appreciation of deformities is often seen, and early treatment may mean much comfort to the patient and increased function in succeedinging years.

DISCUSSION

DR. R. GARFIELD SNYDER, New York: I have injected foreign proteins intravenously or subcutaneously. All proteins have specific and nonspecific reactions, the latter probably being the most important. The type of nonspecific protein I have used is typhoid, and I have never seen bad results from the toxicity. The term "focal infections" is misleading, as often these infections are not encapsulated, and they should be called local infections. In my experience not one case of arrested disease has followed removal of supposed foci. I believe many teeth and tonsils are needlessly removed.

DR. JOHN H. RICHARDS, New York: I have not seen any case permanently benefited by proteose, milk or typhoid bacilli. With specific vaccine treatment, the bactericidal power of the blood is increased, though frequently foreign protein injections will remove residual symptoms. Sometimes there may be bad effect, such as nephritis or persistent vomiting. I have been able to corroborate Pemberton's results as to low sugar tolerance in arthritis. I think that the benefit resulting from dieting in arthritis is from the change in intestinal flora. *Streptococcus viridans* does not grow well in a very acid or very alkaline medium. Children of arthritic families should be instructed.

DR. J. C. RUSHMORE, Brooklyn: I want to urge the importance of orthopedic measures in early stages of treatment. Relief of pain can be effected by fixation and traction, so as to prevent deformity. We can treat by massage and heat, and these methods will give much relief. You may not change the process in the joint, but you will clean up the periarticular tissue. A great part of the work is teaching these people to correct posture; we can put them in a better position.

Synergistic Analgesia

DR. JAMES T. GWATHMEY, New York: Magnesium sulphate, 25 per cent., chemically pure, combined with morphin, produces a very reliable synergistic analgesic. The perception of pain is dulled by doses that hardly affect ordinary sensibility. The mechanism is probably that the magnesium holds the morphin in contact with the central nervous system. The breathing is like natural but prolonged sleep. Nausea and

vomiting are reduced to a minimum; the waking is pleasant, and there are no gas pains. Appetite is better, and there is a shortening of convalescence.

Anesthesia with Nitroxygenized Ether Vapor

DR. ADOLPH F. ERDMAN, Brooklyn: In this method, nitrous oxid is used for carrying other agents. The oxygen is the corrector and ether the base. The machine runs itself, and the apparatus is portable; the dosage is automatically controlled. The closed method is not always used, and patients are often allowed to rebreathe. The relationship of oxygen and carbon dioxid is important. The patients receive a gradually increasing volume of straight gas, and oxygen is begun as needed, and ether turned on when necessary. The method is easy and direct and very useful in my hands.

DISCUSSION

DR. CHARLES H. SANFORD, New York: I have used this method for some years with great satisfaction. The closed method is to be preferred, because the dosage is more constant, and regular proportions of nitrous oxid and oxygen can be given.

DR. ADRIAN V. S. LAMBERT, New York: I am convinced that that combination gives a greater degree of relaxation for abdominal work than nitrous oxid alone. Less anesthetic is required for intra-abdominal operations. The administration lately has consisted of a 5 per cent. solution, 300 c.c. subcutaneously, which has procured uniform results.

DR. ALFRED GORDON, Philadelphia: One-half hour before operation we gave one-eighth grain of morphin and 25 drops of magnesium sulphate solution; fifteen minutes later, another dose, and fifteen minutes later, 1 ounce of ether with olive oil and paraldehyd by rectum. The blood pressure is not changed, and postoperative vomiting is absent.

Chemical Removal of Inoperable Cancer of Breast and Metastasized Axillary Lymph Nodes

DR. CHARLES W. STROBELL, New York: Zinc oxid, in concentrated solution and in paste form, is used, thickened with flour so that it can be spread on. The devitalized tissue can be removed easily and painlessly, until the whole breast is bared to the chest wall. Skin grafts are then made in the form of Thiersch grafts. No pain is felt if the chemical is confined to the carcinomatous areas. Such growths as cirrhous cancer, fibrocarcinoma, adenocarcinoma and carcinoma vera have been removed completely. Thirty-two patients have died in from two to eight years after removal, generally in coma.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Sixth Annual Meeting, held, May 10-11, 1921, at Atlantic City

(Concluded from page 1526)

Bactericidal Activity Against Bacillus Diphtheriae of the Whole Coagulable Blood of Immunized Animals

DRS. SOLOMON SOLIS-COHEN and MEYER SOLIS-COHEN, Philadelphia: Dr. Heist showed that there is in the blood of animals a property inimical to the growth of organisms to which the animal was immune. This substance is present in the whole coagulable blood of the immune animal; it is not demonstrable in serum, in defibrinated blood or in citrated blood. When injected to cause artificial immunization, the same property appeared in the immunized animal. In diphtheria the immunity is antitoxic, not antibacterial. Two points were discovered: (1) Bactericidal power against *B. diphtheriae* was found in the blood of the rat; (2) in human beings subjected to the Schick test, there was bactericidal power in some, but there was no correspondence between immunity by the Schick test and the bactericidal power.

DISCUSSION

DR. WILLIAM H. PARK, New York: It occurred to us that there might have been an error in thinking that antitoxin immunity caused a cure. We find children without antitoxin, and we found that antitoxin did not occur at all until weeks after the recovery, so that I think bactericidal immunity caused recovery. Bactericidal values for one thing are not the same as for another. There is no reason to fear that a single antitoxin will not apply to all types. It seems to fit all cases.

DR. SOLOMON SOLIS-COHEN, Philadelphia: We did not observe any differences in growth between the toxin and nontoxin producing varieties, but recently the Philadelphia Board of Health has found three types which can be distinguished. Perhaps the strains produced in New York should be called small toxin producers or nontoxin producers. Some Klebs-Loeffler bacilli were killed in a very short time by the blood, and other groups required a long time or were not killed at all.

Experimental Studies of the Pharmacology of Quinidin

DRS. A. E. COHN and R. L. LEVY, New York: One patient stated that his cardiac attacks (auricular fibrillation) were stopped by taking quinin. It was tried on other patients, with success in some cases. Other derivatives of the drug were studied in order to stop fibrillation. Quinidin, in doses of from 0.2 to 0.4 gm., gives success in 50 per cent. of cases. Experimental studies on dogs showed that contraction of the auricle became less, and that with faradization after quinidin dosage, one could not start fibrillation. Other effects noted were: increase of height of contraction; fall of blood pressure in the peripheral arteries. There were no constant results on the T wave or on the conduction time. The conclusions were that there seems to be an alteration in the muscle which makes it refractory to faradization as regards fibrillation, and there is a striking effect on contraction. These are artificial experiments, not likely to be carried into the clinic.

Objects and Method of Diet Adjustment in Diabetes

DR. R. T. WOODYATT, Chicago: In spite of the work of Allen and Joslin, there are many varied opinions as to diabetic diets. In some cases the strictly limited diets give good results. One characteristic of diabetes is the inability to use glucose in excess of a certain amount. The pancreatic secretion is altered in this respect. The quantity of food which may be normally oxidized by the body is determined by the quantity of glucose which is oxidized. Therefore, we must bring glucose within the limits of the body's power. In a fasting state, the body uses endogenous supplies for its nutrition; even on a maintenance diet, endogenous food is used. There are thousands of combinations of fat, protein and carbohydrate, but all carbohydrate must become glucose before it can be oxidized. One hundred gm. of protein will yield 5 per cent. of glucose, and 100 gm. of fat will yield 10 per cent of glucose; in giving these elements we must watch for the critical point at which acetone appears. We must adjust carbohydrate to the highest possible level, because it will carry more fat than protein will, and, therefore, spares protein. If we add protein, we must remember to subtract calories. The addition of fat reduces the quantity of glucose going into the metabolism. Cream is very useful in this respect, and spares protein.

DISCUSSION

DR. L. N. NEWBURG, Ann Arbor, Mich.: This is another step away from the forced starvation diet. From the clinical point of view, I believe we are wrong to subject the diabetic patient to prolonged effect of undernutrition. I tried to devise a diet which would not produce undernutrition, and would prevent glycosuria and acidosis. We found that we could do this with the addition of large amounts of fat to the diet. Dr. Woodyatt, working from another angle, has arrived at the same conclusion. He has worked out the optimal diet on the basis of the lines of metabolism, using the metabolic expression of the optimal diet as it should be fed to the diabetic. With this method, he has arrived at a diet high in fat. Treatment will be advanced as soon as it is proved that this method is of use in diet.

DR. E. P. JOSLIN, Boston: Before Allen's work with undernutrition was inaugurated, many children lived one year and are now dead. The next series, treated by the method since 1914, have lived more than two years, and now more than three years, whereas in adults before 1914, the average duration of life was three years; since that period, cases have

lasted for five years. One can give a seven years' prognosis for 100 diabetics coming for treatment. Therefore, as the result of the 1914 methods, an extension of life has actually taken place. What should be the attitude of the physician of today to this new idea? Should one go over to the new method of treatment and increase the quantitity of fat in the diet? Dr. Newburg's patients became sugar and acetone free. I have tried this treatment in the worst possible cases of diabetes. None became sugar free; none became free from acidosis. In one case, acidosis became so severe that coma threatened. The alveolar air had dropped to 14 mm. of mercury. That does not mean that Dr. Newburg's treatment should not be utilized. We can use it in selected cases.

DR. F. M. ALLEN, New York: We must effect a balance of three factors: carbohydrate, fat and the organism. The total quantity of the diet is one factor, and the ratio affects this. Very thin, emaciated patients may never have an acidosis, no matter how much fat you give; but in a well nourished individual you run the risk of a serious acidosis. It is a question whether the ratio will hold. Undernourished people do handle carbohydrate of protein as if it were carbohydrate, and will remain ketone free. That does not hold on overnourished people. Perhaps it is not possible to overnourish without ketonuria. Even in normal individuals there are variations in fat tolerance. Age is another factor: an adult dog can pass to death without acetone, while a young puppy may show fatal acidosis. I tried to trace the cause. I obtained definite evidence of internal secretion influence. This is a serious matter, because fat added to the diet may make the diet excessive. Carbohydrate may be tolerated with little fat, but not with high fat. This has been proved by experimental clinical evidence. Two patients are alive today with unimpaired tolerance, and one has lowered tolerance because she stole the butter. One can give enough sugars in the form of food, liberal in proportion, but we must measure the total caloric intake. If one makes that too high, the patient will die. If one keeps the patient sufficiently undernourished, one will abolish downward progress. We have young patients undergoing this treatment, who go on without decline of tolerance, and progress better than on high diet, which is impossible in this type of diabetes.

DR. SIDNEY STRAUSS, Chicago: There are two classes of patients with diabetes who do not respond to undernutrition: those who, despite rigid adherence to low diet, do not retain the balance, and the older, chronic diabetic patients, who, when they have sugar, do not feel well and are much more likely to develop symptoms. Patients often get along very well with a high fat diet. They do not follow diets strictly. That has to be met. There is a difference between malnutrition and a luxus diet. There is the moderate diet which contains more fat than we have been accustomed to using.

Familial Diabetes

DR. H. R. M. LANDIS, Philadelphia: In the family studied there were ten children in the family, nine living. There were four blonds, free from symptoms, and five brunets, who all had glycosuria. This tendency seemed to have skipped one generation, and to have appeared in grandchildren. There seemed to have been a distinct hereditary and familial tendency in this case.

DISCUSSION

DR. SOLOMON SOLIS-COHEN, Philadelphia: This confirms in some measure speculations on the subject of tuberculosis, carcinoma and diabetes and endocrine disturbance. I reported three clans, consisting of a number of families, in some to the fourth or fifth generation, in which we found distinct antagonism between tuberculosis and carcinoma, on the one hand, and diabetes on the other. Those who escaped tuberculosis and carcinoma usually showed marked endocrine disturbance with symptoms of diabetes. Among sixty-five diabetics, one showed tuberculosis.

DR. J. M. ANDERS, Philadelphia: Familial diabetes is supposed to occur in obese subjects. My experience confirms this view. I have the definite impression that in cases of familial diabetes which occur in obese subjects, gout figures as the cause of the obesity. The manifestations occur in late life and are not severe; but if in early life, they are severe. Obestity and gout are hereditary, and in both there is marked tendency to glycosuria. This partly explains familial diabetes.

DR. F. M. ALLEN, New York: We should make glucose tolerance tests of the nondiabetic members of these families to determine whether or not there is a diabetic tendency.

Blood Sugar Tolerance Test as an Aid in Diagnosis of Gastro-Intestinal Carcinoma

DRS. JULIUS FRIEDENWALD and G. H. GROVE, Baltimore: The curve of sugar tolerance makes possible differential diagnosis between carcinoma and other disease of the gastro-intestinal tract. Examination of curves showed: (1) the normal curve, which, two hours after 100 gm. of glucose, fell to normal; (2) the atypical normal curve (achylia gastrica), which fell slowly after two hours; (3) the intermediate curve, blood sugar high, associated with carcinoma of other parts of the body, and (4) gastric carcinoma curve, with high blood sugar. Cancer curves can be distinguished from cancer of other parts of the body. Tabes, nephritis, tuberculosis and thyroid conditions should be excluded, and hyperglycemia is often present in these conditions. The test has proved positive in seventy-two out of seventy-five cases studied, and is therefore a valuable diagnostic measure. It was positive in five nonmalignant cases.

Relation of Acromegaly to Thyroid Disease

DR. JAMES M. ANDERS, Philadelphia: We found five of sixteen cases with associated thyroid disturbance: We should apply the sugar tolerance tests and estimate the metabolic rate, which has not always been done. In 215 acromegalic cases, ninety-one had thyroid lesions. Glycosuria was present in 35 per cent. The pituitary disturbance appears to precede the thyroid disturbance by several years.

A Method for the Study of Early Arterial Changes

DR. HARLOW BROOKS, New York: Examination of the conjunctival vessels is easy as these vessels represent the intracerebral circulation. They appear bluish white on the back ground. The eye must be near the lens, and the examination takes only a few minutes. The changes appear very early in hypertension, even when transitory. The vessels look like cords. There are often zones of obliteration and formation of small sacular aneurysms. These are very striking.

Blood in Tetrachlorethane Poisoning

DRS. GEORGE R. MINOT and L. W. SMITH, Boston: This chemical can produce serious or fatal hepatitis. The poison acts particularly on the blood and on the liver. The symptoms are very ill-defined. The person is fatigued, has slight gastro-intestinal symptoms, constipation, perhaps jaundice. The liver is palpable and tender. The onset is insidious. Of sixty-eight persons exposed, twenty-one had poisoning. There is a definite blood picture. Progressive increase of the large mononuclears, reaching as high as 40 per cent. There is a slight secondary anemia. The blood picture can be discovered before symptoms appear. Respiratory affections seem to lower the resistance of the workers. When there are blood changes and symptoms, this indicates removal from work. Recovery is gradual. Persons who have once been affected are more sensitive to the poison in the future.

Pituitary Extract and Water Balance

DRS. L. G. ROWNTREE, E. E. LARSEN and J. F. WEIS, Minneapolis: Water balance and water intoxication were studied in fifteen cases of diabetes insipidus. There is increase of thirst, polyuria and polydipsia. In some cases thirst preceded polyuria. Pilocarpin did not relieve the thirst, nor did cocainization of the mucous membrane. Pituitary extract had no effect on water excretion, nor had a spinal puncture. The blood showed increase in plasma volume and molecular constituents. We thought there was hydremic plethora with increased renal threshold. In dogs with water intoxication very violent symptoms are shown—convulsions, frothing—but the animal recovers in a few days. Simply forcing water leads to water intoxication. There was no evidence of edema of the brain.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

May, 1921, **21**, No. 5

*Concerning the Nature of "Protozoan-Like" Cells in Certain Lesions of Infancy. E. W. Goodpasture and F. B. Talbot, Boston.—p. 415.
*Case of Gaucher's Splenomegaly. N. C. Foot and W. E. Ladd, Boston. —p. 426.
*Case of Idiopathic Hemorrhagic Sarcoma of Kaposi. S. McLean, New York.—p. 437.
*Influenzal Meningitis. I. A. Abt and I. H. Tumpeer, Chicago.—p. 444.
Study of Breast Feeding in Minneapolis. J. P. Sedgwick, Minneapolis. —p. 455.
Toxic Symptoms in Infants and Children with Gastro-Intestinal Manifestations. H. Schwarz and J. L. Kohn, New York.—p. 465.
*Diphtheria Among Immunized Children. S. A. Blauner, New York.—p. 472.
*Eosinophilia Occurring in Chorea. H. C. Berger, Kansas City.—p. 477.
Sugar in Urine of New-Born Infants Before Intake of Food. F. Millikin, Chicago.—p. 484.
*Necropsy Findings in New-Born Infants. M. Warwick, St. Paul, Minn. —p. 488.
*Case of Meningococcus Meningitis with Obstructive Hydrocephalus. J. H. Root, Waterbury, Conn.—p. 500.

Protozoan-Like Cells in Infants' Tissues.—The so-called "protozoan-like" cells with which this paper is concerned were first described in 1904 by Jesionek and Kiolemenoglou, who found them in the kidneys, lungs and liver of an eight months fetus, in intimate association with lesions of hereditary syphilis. The case by Goodpasture and Talbot is of especial interest in that it furnishes definite evidence of the histogenous origin of these cells, shows their transportation through the blood stream, and indicates that this peculiar cellular change is a retrogressive one by which certain cells become independent of the body tissues and capable perhaps of wandering about exhibiting a certain similarity to protozoa. To identify the condition with a descriptive name, the authors suggest that it be called cytomegalia to emphasize the notable enlargement of the cells affected, and at the same time to distinguish the condition from those forms of cellular enlargement which at present are included under the general term giant cells.

Gaucher's Splenomegaly.—Twenty-one cases of this unusual disease are recorded in medical literature. The case cited by Foot and Ladd concerns a boy, aged 8 years, whose spleen was removed. This case fulfils the requirements as postulated by Mandelbaum and Brill. The large cells contain no lipoids, they do contain iron compounds showing the typical reaction to potassium ferrocyanid; both diffuse and granular. The various inclusions described are all present here, except that no iron-free pigment is demonstrable. Reticulum fibrils are found in the younger anastomosing Gaucher cells and the columnar arrangement described by Mandelbaum (in connection with lymph nodes) is found here in the spleen. The clinical symptoms were rare ones, rather than the more usual variety. There was no cutaneous discoloration, no tendency to bleed, little enlargement of the liver and no conjunctival symptoms. Enlarged spleen, pain in the abdomen and legs and profuse sweating were present. The blood counts were not particularly significant, and there was a long history of gastro-intestinal disturbances which might be referable to lesions in the lymphoid apparatus of that tract, but which must remain, for the present problematical. There seems to be no other case in the family. The child's spleen was first enlarged and palpable when he was 7 years old, the disease making, therefore, greater strides in the last twelve months than in the preceding three years, since a "fullness in the left flank" was noted. The immediate results of the splenectomy have been most encouraging.

Hemorrhagic Sarcoma of Kaposi.—McLean's patient, a boy, 5½ years of age, had spots all over his body, but the two largest were situated on either cheek. Death occurred twenty-four days after admission to the hospital about eight months after the onset of the disease, apparently from anemia with a terminal bronchopneumonia. Neither a necropsy nor removal of tissue sections was permitted.

Influenzal Meningitis.—In the case reported by Abt and Tumpeer the bacillus was isolated from the spinal fluid, blood, throat, nose and nasopharynx. Cultures were studied and animals inoculated. The spinal fluid yielded a four plus Wassermann and reduced colloidal gold suspensions in the syphilitic zone. Morphologically typical diphtheria bacilli were found in large numbers in a nasal culture. Death occurred ten days after the onset. A necropsy was not permitted.

Diphtheria Among Immunized Children.—Blauner is convinced that diphtheria can occur among children who possess either natural immunity or who have been immunized by the toxin-antitoxin procedure. An experience in a carefully supervised orphan asylum has taught us that diphtheria in epidemic form can occur among immunized children, at least to say now, that the value of a negative Schick reaction is not universal, and as a result further studies and clinical observations must be made before its exact value can be computed.

Eosinophilia in Chorea.—The blood of forty children was examined by Berger for the number of eosinophils. The highest count was 26 per cent., the lowest 0, with a general average of 7.6 per cent. The possible relationship between eosinophilia and chorea is discussed.

Necropsy Findings in New-Born.—Two hundred necropsies are analyzed by Warwick. Cerebral hemorrhage occurred in from 43 to 50 per cent. Hemorrhagic disease is often associated with cerebral hemorrhage. Malformations occurred in 15 per cent. of which only 4 per cent. were multiple. Of these, developmental defects of the heart were most common but those of the digestive tract were surprisingly numerous. Birth injuries were rare (0.7 per cent.) but when they occurred they were usually in the spinal column. Acute infections were rare; bronchopneumonia was the most frequent.

Meningococcus Meningitis.—Only one case of meningococcus meningitis with obstructive hydrocephalus developing during the acute stage of the disease was found in the literature by Root and now he adds one case. The symptoms are usually irregular and obscure. The most important ones are repeated convulsions, vomiting (not projectile), and after a week or more, bulging of the fontanel and rigidity of the neck.

American Journal of Physiology, Baltimore

April 1, 1921, **55**, No. 3

Physiology of Stomach. LV. Influence of Vagi on Gastric Tonus and Motility in Turtle. Z. Bercovitz and F. T. Rogers, Chicago.—p. 323.
*Vitamin Content of Honey and Honey Comb. P. B. Hawk, C. A. Smith and O. Bergeim, Philadelphia.—p. 339.
Sugar in Blood of Dogfish and of Sand Shark. E. L. Scott, New York.—p. 349.
Sugar in Blood of Common Frog. E. L. Scott and N. Kleitman, New York.—p. 355.
Sugar in Blood of Normal Pigeons. E. L. Scott and H. E. Honeywell, New York.—p. 362.
Studies on Visceral Sensory Nervous System. VII. Skeletal Reflexes Induced by Stimulation of Visceral Afferent Nerves in Frog and Turtle. A. J. Carlson and A. B. Luckhardt, Chicago.—p. 366.
An Electrocardiogram and an Electromyogram in an Elephant. A. Forbes, S. Cobb and M. Cattell, Boston.—p. 385.
*Physiology of Stomach. LVI. Gastric Secretion in Starvation. G. F. Sutherland, Chicago.—p. 390.
*Physiology of Stomach. LVII. Response of Stomach Glands to Gastrin Before and Shortly After Birth. G. F. Sutherland, Chicago.—p. 398.
*Duodenal Segment of Albino Rat as Standard Reagent for Study of Tissue Extracts and Other Substances. F. S. Hammett, Philadelphia. —p. 404.
*Intestinal Mechanism Primarily Stimulated by Sodium Carbonate (Albino Rat). F. S. Hammett, Philadelphia.—p. 414.
*Involution of Uterus Following Labor and Influence of Castration and Suckling on Process of Involution. C. Kuramitsu and L. Loeb, St. Louis.—p. 422.
Influence of Lactation on Sexual Cycle in Rat and Guinea-Pig. L. Loeb and C. Kuramitsu, St. Louis.—p. 443.
*Reversal of Depressor Action of Small Doses of Epinephrin. J. B. Collip, Edmonton, Alberta.—p. 450.
*Studies in Nutrition. V. Nutritive Value of Soy Bean Flour as a Supplement to Wheat Flour. C. O. Johns and A. J. Finks, Washington, D. C.—p. 455.
IV. Effect of Warming and Cooling Sino-Auricular Node in Mammalian Heart-Depth of Anesthesia; Tachycardia; Flutter; Sino-Auricular Heart Block. B. H. Schlomovitz, Milwaukee.—p. 462.
*V. Experimental Production of Ventricular Fibrillation by Localized Warming of Cardiac Tissue. B. H. Schlomovitz, Milwaukee.—p. 485.

Vitamin Content of Honey.—Strained honey was found, by experiments on albino rats, not to contain more than minimal amounts of the growth-promoting accessory substances, fat soluble A and water soluble B. Comb honey was found to contain the fat soluble vitamin in moderate amounts. Honey did not protect guinea-pigs against the development of scurvy. The addition of honey to bread did not appreciably delay its digestion in the human stomach.

Gastric Secretion in Starvation.—Sutherland states that in starvation, there is a continuous gastric secretion which shows apparently spontaneous periods of more rapid secretion. If the dog is given only water to drink during a starvation period, the amount of gastric secretion decreases in general day by day. If the dog is given 0.9 per cent. sodium chlorid to drink, the amount of gastric secretion remains about the same at the end as at the beginning of the starvation period.

Response of Stomach Glands to Gastrin.—In guinea-pigs Sutherland says there may be a "spontaneous" secretion of acid gastric juice during late intra-uterine life. In dogs and cats there appears to be no spontaneous gastric juice secretion in utero, but there is some secretory response to gastrin when the fetuses are within a few days of term. Fetuses of the same litter show individual variations in capacity to respond to gastrin. In the cat and the dog the gastric glands do not appear to be fully differentiated even at birth, as the secretory response to the gastrin injections increases with age, at least for the first few days.

Study of Isolated Duodenal Segment.—An apparatus and method are described by Hammett by which the isolated duodenal segment of the albino rat can be so prepared and standardized as to be available for quantitative use as a test organ in a wide range of biochemical, physiologic and pharmacologic investigations.

Stimulation of Intestinal Mechanism by Sodium Carbonate.—Evidence is presented by Hammett leading to the opinion that the intestinal mechanism primarily stimulated by sodium carbonate when applied to the isolated duodenal segment of the albino rat suspended in oxygenated Tyrode's solution at 39 C. is neural and not muscular; and that this stimulation of the segment from the normal, adult, unexcited, male animal is expressed through the mechanism ordinarily mediated by the vagus, while the stimulation of the segment from excited rats is effected through splanchnic endings or fibers. Since these two sets of nerves are conveniently differentiated from the neural mechanism concerned with the myenteric reflex by the term extrinsic it can be said that the carbonate stimulation is primarily transmitted through the mechanisms mediated by the extrinsic nerve supply to the intestine.

Effect of Nursing and Castration on Uterus.—Kuramitsu and Loeb claim that nursing accelerates the involution of the uterus; lack of nursing weakens involution in both rat and guinea-pig. Castration intensifies involution. The effects of nursing or the lack of it are in all probability exerted on the uterine tissues directly and not indirectly by way of the ovaries. Castration seems to alter the uterine tissues in such a way that they become less responsive to the effects caused by the lack of nursing.

Reversal of Depressor Action of Epinephrin.—Collip was able to convert the depressor effect of a small dose of epinephrin in an animal under light ether or chloroform anesthesia into a pure pressor effect by increasing the anesthetic. Decreasing the anesthetic restores the depressor effect. The depressor effect of a small dose of epinephrin in an animal under light but constant anesthesia may be converted into a pressor effect by decreasing the blood C_H by means of intravenous administration of sodium carbonate. The pressor effect of a moderate dose of epinephrin may be increased by decreasing the blood C_H. The pressor effect of a moderate dose of epinephrin may be decreased by raising the C_H of the blood as by intravenous injection of acid sodium phosphate. Atropin does not antagonize the above reactions nor does it effect the antagonism of the depressor action of small doses of epinephrin by tissues extracts.

Nutritive Value of Soy Bean Flour.—Bread made with a mixture of twenty-five parts of soy bean flour and seventy-five parts of wheat flour contained a protein mixture and water-soluble vitamins adequate for normal growth. A similar bread containing fifteen parts of soy bean flour and eighty-five parts of wheat flour likewise furnished adequate proteins and water-soluble vitamins for normal growth. These mixtures of the soy bean and wheat proteins were found by Johns and Finks to be two or three times more efficient than the proteins from wheat alone.

Localized Warming Initiates Ventricular Fibrillation.—A method is presented by Schlomovitz by which it is possible to obtain a heart in which localized warming will initiate ventricular fibrillation. This can be done repeatedly if the heart is previously digitalized and tested during the toxic stage when the ventricles are beating independently.

American Journal of Public Health, Chicago

May, 1921, **11**, No. 5

Municipal Administration of Health and Welfare Departments. G. H. Clark, Long Beach, Calif.—p. 401.
Sanitation in Bakeries. H. E. Barnard, Minneapolis.—p. 407.
Wassermann Test in Public Health Laboratory. R. L. Kahn, Lansing, Mich.—p. 410.
Factors that Influence Infant Mortality. S. G. Thompson, Jacksonville, Fla.—p. 415.
Public Health Education and Mental Hygiene. F. E. Williams, New York.—p. 420.
Relation of Psychiatry to Public Health. E. C. Reid, San Francisco.—p. 425.
Social Aspect of Mental Defect. H. W. Wright, San Francisco.—p. 431.
Food Inspection in Cleveland. R. G. Perkins, Cleveland.—p. 434.
Hookworm in California Gold Mines. R. W. Nauss.—p. 439.
Epidemiologic Rôle of Case of Cerebrospinal Meningitis. R. R. Simmons.—p. 452.

American Journal of Syphilis, St. Louis

April, 1921, **5**, No. 2

Responsibility of Intensive Treatment Method with Regard to Incidence of Early Neurosyphilis. A. R. Fraser.—p. 201.
Syphilis of Heart. H. Brooks, New York.—p. 217.
*Conjugal Syphilis of Nervous System. A. Gordon, Philadelphia.—p. 248.
*Syphilis of Nervous System in Children. E. L. Hunt, New York City.—p. 259.
Treatment of Syphilis. S. Feldman, New York.—p. 268.
*Wassermann Reaction in a Large Group of Supposedly Nonsyphilitic Individuals, Including Large Groups of Diabetics and Nephritics. J. R. Williams, Rochester, N. Y.—p. 285.
Studies in Standardization of Wassermann Reaction. J. A. Kolmer, Philadelphia.—p. 290.
Value of Ice Box Incubation and Cholesterin Antigen as Shown by 1,600 Comparative Tests. B. W. Rhamy, Fort Wayne, Ind.—p. 300.
Wassermann Reaction: Reasons for Discrepancies in Estimation of Clinical Value: Necessity for Uniformity and Standardization: Suggestions: Report of Series and Interpretation. H. M. Ray, Pittsburgh.—p. 320.

Conjugal Syphilis of Nervous System.—A study of thirty-two cases by Gordon shows that there were more positive Wassermann reactions of the spinal fluid in the second party, who developed nervous syphilis years after the beginning of conjugal life, than in the first party of the married couple (10 to 7). Conversely there were fewer positive reactions of the blood and spinal fluid combined in the first than in the second group (2 to 5). Moreover, in two cases in which there were no sexual relations, but merely cohabitation (sister and son, respectively), the Wassermann reaction was positive only in the spinal fluid. The conclusion drawn by Gordon is that conjugal syphilis is more common than it is generally believed, that it may be present not only in the wife after she has cohabitated with the man for a number of years, but also in every other individual (sisters or brothers) living in the same dwelling with the affected person after a number of years. In the latter case the question of hereditary syphilis was entirely eliminated.

Neurosyphilis in Children.—Hunt claims that this condition is common. The nervous system may be involved early. A lumbar puncture may be of great help and should be a routine part of the examination of every nervous child. Syphilis in children necessitates a blood and spinal fluid examination of the parents and vice versa. Treatment is not very promising. The stigmata are not necessary or even very frequent.

Wassermann Reaction in Nonsyphilitics.—A group of 912 individuals representing chiefly the great American middle class population were examined clinically and by the Wassermann test with reference to syphilis. None of these indi-

viduals were known or supposed to have syphilis. Many of them were persons in good health, a large group were afflicted with diabetes, another large group with nephritis, while the remainder were ill with miscellaneous medical complaints. Approximately 4.4 per cent. showed a positive Wassermann. In a group of 337 diabetics, positive Wassermanns were obtained in sixteen individuals, or approximately 4.8 per cent. after one or more tests of each case. No specific treatment for syphilis was given these sixteen cases, nevertheless seven of them gave thirteen negative reactions and three others gave doubtful reactions. The bloods of these cases all had an increased lipoid content. In thirty-eight individuals, chiefly diabetics, whose serums were too anticomplementary, an increase in blood cholesterol was commonly noted. In a group of 110 nephritics, only one positive Wassermann reaction was obtained. In a group of 369 miscellaneous medical cases, there were twenty-three positive reactors, or approximately 6.2 per cent. Approximately 2 per cent. of the cases studied either had clinical or postmortem evidence of syphilis not revealed by the Wassermann test.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, 1920, **29**, No. 4

Local Amyloid with Special Reference to So-Called Amyloid Tumors of Tongue. H. E. Robertson, Minneapolis.—p. 773.
Trifles That Count for Efficiency. B. A. Randall, Philadelphia.—p. 796.
Acute Abscess of Lateral Wall of Laryngopharynx. C. W. Richardson, Washington.—p. 804.
Chloroma with Special Reference to Ear, Nose and Throat Manifestations, with Report of Two Cases. W. W. Pearson, Des Moines, Ia.—p. 896.
Concerning Question of Jugular Ligation in Sinus Thrombosis. O. M. Rott, Spokane, Wash.—p. 820.
Lateral Sinus Thrombosis; Report of Seven Cases. F. T. Hill, Waterville, Me.—p. 829.
Education of Vestibular Sense. F. J. Martel and I. H. Jones, Los Angeles.—p. 859.
Neuro-otology. C. G. Crane, Brooklyn.—p. 879.
Barany Tests in Supratentorial Tumors Proved by Operation or Necropsy. H. R. Lyons, Rochester, Minn.—p. 898.
Primary Periostitis of Mastoid. S. Salinger, Chicago.—p. 943.

Archives of Neurology and Psychiatry, Chicago

May, 1921, **5**, No. 5

*Psychiatric Aspects of Epidemic Encephalitis. G. H. Kirby and T. K. Davis, New York.—p. 492.
*Histopathologic Findings in Case of Superior and Inferior Poliencephalitis; Remarks on Cerebrospinal Fluid. G. B. Hassin, Chicago.—p. 552.
*Mongolian Idiot. W. Timme, New York.—p. 568.
*Syphilis of Eighth Nerve. J. H. Lloyd, Philadelphia.—p. 572.
*Late Results in Epidemic Encephalitis. M. Grossman, New York.—p. 580.

Psychiatric Aspects of Epidemic Encephalitis.—An analysis was made by Kirby and Davis of the psychiatric aspect of eighteen cases of epidemic encephalitis. The psychic disturbances of epidemic encephalitis present the general characteristics of an acute organic type of mental reaction, corresponding more specifically to a toxic-infectious psychosis. In the acute stages of the disease, psychic torpor and delirium are the most frequently observed mental disturbances, although other clinical pictures may be encountered, as the Korsakoff syndrome or more complex mental disorders in which various affective and trend reactions give a special cast to the psychotic disturbance. Two types of sleep disturbance occur, hypersomnia and hyposomnia. The four gradations of the former are drowsiness, lethargy, stupor and coma. A great majority of patients with encephalitis show delirium at some stage. Transient delirious features during a stupor may easily be overlooked. In encephalitis, the content of the delirium tends to center about habitual trains of thought and occupational activities, but is sometimes determined by somatic sensations. Before the onset of lethargy or delirium, mood changes are usually not marked, although certain patients in retrospect have described a worried, anxious mood at this time; and in contrast, one patient at the onset, while insomnic and overactive, expressed grandiose ideas but was not apparently elated. After the passing of the lethargic or delirious phase, euphoria frequently arises and with it sometimes uncontrollable laughter with appropriate mood. Features of manic reaction are sometimes added to the euphoria and furnish a picture not distinguishable from a manicdepressive excitement. Depressive reactions in various grades of severity, not accompanied by retardation, although in one case with repeated suicidal attempts, have been seen following the stuporous or delirious stage. In the lethargic and stuporous states, there is apathy and apparent inaffectivity. In all of the unrecovered patients, there were signs of some definite alterations in character or mood. Psychic torpor and emotional apathy appear to be the most important mental factors in producing the stupor, while rigidity and certain other muscular symptoms, when present, seem rather to be the expression of a motor phenomenon of the sort seen in paralysis agitans. Ideas of a specific type are not found in encephalitis any more than in other organic-toxic-infectious mental disorders. In regard to the outcome of mental symptoms of epidemic encephalitis, Kirby and Davis have found much evidence of persisting emotional alteration with little evidence of organic mental defects or dementia.

Histopathology of Poliencephalitis.—Hassin claims that poliencephalitis superior (hemorrhagica) of Wernicke is not an inflammatory, but a partial manifestation of a general degenerative process of the central nervous system. It is analogous to other degenerative processes, such as amyotrophic lateral sclerosis, subacute combined cord degeneration, progressive bulbar paralysis and tabes dorsalis, from which it differs by the localization of the degenerative phenomena. It is essentially, though not exclusively, a mesencephalic lesion, resembling in its localization epidemic encephalitis which, however, is not a degenerative but an inflammatory process. The subarachnoid space is a receptacle of the tissue fluids which carry away the waste products of the brain. The function of the choroid plexus is probably to pick up from the cerebrospinal fluid harmful or other products and to render them, as well as the fluid, more absorbable.

Pituitary Changes in Mongolian Idiocy.—In twenty-three out of twenty-four nonselected cases of mongolian idiocy examined by Timme the roentgenogram of the skull showed a peculiar change from the normal in the anterior portion of the pituitary fossa. This change consisted in an excavation under the anterior clinoid processes and presumably under the olivary process and optic groove, and the excavation communicated directly with the anterior portion of the fossa itself. There were varying degrees of this excavation. From knowledge, more or less exact, of the influence of the anterior lobe of the pituitary on growth and genital development, Timme regards this roentgen-ray finding as of considerable interest. Especially is this true, when it is remembered that among the clinical signs of mongolian idiots there is invariably a combination of subnormal and disproportionate body growth, coupled with lack of genital development. The intimate relationship which in early life exists between the anterior hypophysial lobe and the pharyngeal glandular elements is also strikingly coincidental with the extreme pharyngeal mucous secretion seen in mongolian idiots. Furthermore, with such an excavation, involving at times the optic groove, eye symptoms should be and are of frequent occurrence. Theoretically, therefore, disturbance of the anterior portion of the pituitary might readily produce many of the symptoms shown clinically by mongolian idiots. It is therefore suggested that every necropsy examination in cases of mongolian idiocy should include a careful examination of the pituitary gland, notably in its anterior portion. Should such an examination eventuate in a corroboration of antemortem findings, perhaps a rational treatment might be forthcoming for these cases. On the theoretic basis of anterior lobe disturbance, Timme has inaugurated a therapy in several of his cases which has had some degree of success thus far. In one mongolian idiot the testicles have descended since treatment was begun, and there seems to be a measure of mental improvement likewise. This treatment includes the hypodermatic injections of anterior lobe extract (antuitrin), combined with whole gland feeding and thyroid administration in small doses.

Syphilis of Auditory Nerve.—In view of the fact that there is no affection of any cranial or spinal nerve that is more characteristic or more easily recognizable, and scarcely any other, unless it be invasion of the optic nerves, that is followed by more lamentable results, Lloyd regards it as rather remarkable that syphilitic disease of the eighth nerve has apparently attracted but little notice among American and English neurologists until comparatively recent years. His attention has been called anew to this subject by the recent occurrence of early and striking cases in hospital practice. Cases of deafness, tinnitus and vertigo, which formerly would probably have been promptly sent to the otologist, are now retained by the neurologist and scrutinized most closely. Few, if any, of these cases are strictly otologic. They are primarily nervous cases; the lesion is in the nervous system; and the involvement of the eighth nerve is nearly always associated with other well marked symptoms of nervous syphilis. The subject is discussed at some length by Lloyd, and cases illustrative of various types and degrees of deafness are cited.

Late Results of Epidemic Encephalitis.—A follow-up study was made by Grossman of eighty-nine patients who had had epidemic encephalitis. Psychic functions in some form or another were disturbed in 55 per cent. of these patients; insomnia was present in 55 per cent.; tremor and irregular involuntary movements in 58 per cent.; deep reflexes altered in 30 per cent.; muscle tonus disturbed in 18 per cent.; residual signs in cranial nerves in 64 per cent.; pupillary disturbances in 30 per cent. Five patients had Argyll Robertson pupils. About 8 per cent. of the patients gave signs of progression at the time they were examined. The mortality among 145 patients was 20 per cent.

California State Journal of Medicine, San Francisco

May, 1921, **19,** No. 5

Smallpox a Quarantinable Disease. W. J. Hanna, Sacramento.—p. 187.
*Poison Oak Dermatitis. H. E. Alderson and H. J. Pruett, San Francisco.—p. 188.
Results of Wassermann Test on 1,518 Men at San Quentin Prison. G. W. Nagel, San Quentin.—p. 193.
Ante-Operative and Postoperative Treatment. C. L. Lowman, Los Angeles.—p. 195.
*Ameba-Like Leukocytes in Normal Blood and in Pus. H. Gunn, San Francisco.—p. 198.
Plaster Cast Immobilization of Fractures Prior to Open Operation for Reduction of Same. N. T. Enloe, Chico.—p. 199.
Trauma: Relation to Nervous Diseases of Undetermined Pathology. J. Catton, San Francisco.—p. 202.
Essential in Reconstructive Surgery—"Atraumatic" Technic. S. Bunnell, San Francisco.—p. 204.
Acute Brain Injuries. T. O. Burger, San Diego.—p. 207.
Neurological Aspects of Visceroptosis. T. G. Inman, San Francisco.—p. 209.

Treatment of Poison Oak Dermatitis.—Alderson and Pruett report thirty-four cases in which treatment consisted of the injection of 1 c.c. poison oak extract into the gluteus or deltoid. Almost invariably one intramuscular injection is followed by great relief of the local symptoms; swelling and itching particularly begin to subside within twenty-four hours. There is not much local irritation as a rule, but at times where some of the fluid has worked its way along the track of the needle, a painful indurated nodule appears and is slow in subsiding. Some of the patients seem to have become immune.

Ameba-Like Leukocytes.—Gunn suggests that sluggishly motile leukocytes, assuming as they do at times, bizarre forms are accountable for some of the reports of amebas or ameboid bodies found in unusual locations.

Johns Hopkins Hospital Bulletin, Baltimore

May, 1921, **32,** No. 363

*Epidemic Encephalitis. A Clinical Study. W. M. Happ and V. R. Mason, Baltimore.—p. 137.
*Study on Experimental Rickets. III. Effect of Diets Low in Phosphorus and Fat Soluble A: Phosphate Ion in Its Prevention. P. G. Shipley and E. A. Park, E. V. McCollum and N. Simmonds, Baltimore.—p. 160.
*Giardia (Lamblia) Intestinalis. A Common Protozoan Parasite of Children. K. F. Maxcy, Baltimore.—p. 166.

Epidemic Encephalitis.—In a series of eighty-one cases Happ and Mason did not encounter a single instance in which more than one member of a family or household was affected, nor was it possible to determine the mode of infection. The important symptoms are discussed seratim and illustrated when possible by case reports.

Experimental Rickets.—Diets low in their content of fat soluble A and phosphorus produced in the majority of the young rats placed on them pathologic conditions of the skeleton having a fundamental resemblance to rickets, but not identical with that disease as it usually manifests itself in the human being. The chief difference consisted in the presence of scattered or irregular deposits of calcium salts in the cartilage and metaphysis. The picture bore a marked resemblance to those seen in rachitic children in whose bones incomplete healing has taken place. When the deficiency in phosphorus is compensated for by the addition of a complete salt mixture containing the phosphate ion, the deficiency in fat soluble A still existing, no pathologic changes of a rachitic nature developed. The addition of the phosphate ion to the diet had no effect, however, in preventing xerophthalmia, hence it seems permissible to infer that xerophthalmia and rickets do not have an identical etiology. These results do not in the author's opinion exclude the fat soluble A from consideration as an etiological factor in the production of rickets and kindred diseases, since the level of the blood phosphate is, in all probability, determined in part by the amount of the fat soluble A available for the needs of the organism.

Intestinal Parasites in Children.—Of eighty-nine children examined by Maxcy, eighteen or 20 per cent. were found to be harboring intestinal protozoa of some type. It is noteworthy that in a group of fifteen "feeding cases" under 1 year of age no infestations were found. The youngest positive case was a little girl, 17 months of age, whose stools showed large numbers of *Endameba coli* cysts. From the second year on there was an increasing number of positive cases with advancing age, so that the group of children from 6 to 12 years old showed a decidedly higher percentage of infestations than the children between 1 and 5. *Giardia intestinalis* alone was found in ten cases; *Giardia* and *Endameba coli* were found in one case; *Giardia* and *Blastocystis* in two cases; *Giardia, Hymenolepsis nana* and *Oxyuris vermicularis* in one case; and *Endameba coli* alone in four cases.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, 1921, **17,** No. 4

*Comparative Toxicity of Thymol and Carvacrol (Isothymol). A. E. Livingston, Washington, D. C.—p. 262.
*Evidence for Presence in Digitalis of a Principle that is Eliminated Rapidly After Intravenous Injection into Cat. M. S. Dooley, New York.—p. 277.
*Relation Between Amount of Stainable Lipoid Material in Renal Epithelium and Susceptibility of Kidney to Toxic Effect of General Anesthetics. Wm. deB. MacNider, Chapel Hills, N. C.—p. 289.

Toxicity of Carvacrol.—Carvacrol is produced from spruce turpentine. The possibility of its use as a substitute for thymol was suggested in 1918 by Hixson and McKee when thymol could not be obtained from abroad. No data being found in the literature in regard to its toxicity, a comparative study of carvacrol with thymol was undertaken by Livingston. He used rabbits, paramecia and earthworms and found that the toxicity of thymol and of carvacrol on rabbits is essentially the same. The toxicity of thymol and of carvacrol is essentially the same. The toxicity of thymol and of carvacrol as tested on paramecia shows no striking difference. Tests on earthworms indicate that the relative anthelmintic values of thymols and carvacrol are practically the same.

New Digitalis Body.—Seven specimens of digitalis were examined by Dooley in order to determine the difference between the amounts required to cause death following the intravenous administration in the cat in short periods as contrasted with the amounts required in longer periods of administration. Evidence is submitted to show that the total amount of digitalis required in this way to cause death is less when this amount is injected within a few minutes than that required when the administration is prolonged over a

period of several hours. This is the opposite of the case with digitoxin of which more is required to cause death promptly than after the lapse of some hours. The results obtained are interpreted as indicating the presence in the leaf of a digitalis body having a shorter period of cardiac action in the cat than that of any true digitalis body hitherto studied in this way. This brief period of cardiac action is regarded as evidence for its "elimination" in the sense previously defined. There is some clinical evidence in support of the view here expressed.

Toxic Effect of Anesthetics on Kidney.—When normal animals of different age periods are anesthetized by either chloroform or ether, there is found to exist a definite relationship between the toxicity of the anesthetic for the renal epithelium and the age of the animal. These anesthetics are more toxic for the kidneys of old animals than they are for the kidneys of puppies and young animals. This variation in toxicity is expressed histologically by more extensive degenerative changes in the kidneys of old animals and by a more marked decrease in the functional response of the kidneys of such animals. Chloroform has been found to be more toxic for the kidneys of both old and young normal animals than ether. When kidney tissue of normal animals of different age periods that have been anesthetized by chloroform or ether is stained for lipoid material and studied histologically, there has been found to occur a greater accumulation of such material in the kidneys of the animals anesthetized by ether. On the whole, the results of MacNider's investigation indicate a definite relationship between the amount of stainable lipoid material in the renal epithelium of both normal and naturally nephropathic animals and the susceptibility of this epithelium to the toxic effect of both ether and chloroform.

Laryngoscope, St. Louis

April, 1921, **31**, No. 4

*Acoustic Neuromas. H. Cushing, Boston.—p. 209.
Cultivating Balance Sense: Prelude to Cloud Flying. R. J. Hunter, Philadelphia.—p. 229.
Open Safety Pin in Larynx, Six Months. H. B. Orton, Newark, N. J. —p. 233.
Peritonsillar Abscess and Its Radical Treatment. I. M. Heller, New York.—p. 236.
Vaccines in Treatment of Asthma. G. H. Sherman, Detroit.—p. 239.

Acoustic Neuromas.—Of 1,138 brain tumors of all regions seen by Cushing, of 354 posterior tumors, and of 117 tumors of the angle, in particular, the acoustic neuromas represent 7.3 per cent. of all verified tumors (47 in 639 cases); 24.5 per cent. of all verified posterior lesions (47 in 192 cases); 60.3 per cent. of all proven extracerebellar cases (47 in 78 cases); and far and away the larger percentage of all tumors with symptoms pointing unmistakably to the cerebellopontile angle (47 in 60 cases). When tumor symptoms, therefore, point to the recess and begin with deafness one may feel fairly certain of a diagnosis.

Michigan State Medical Society Journal, Grand Rapids

May, 1921, **20**, No. 5

Gonorrhea in Women. J. E. Davis, Detroit.—p. 153.
Congenital Malformations in Urinary System. M. C. Bergheim, Detroit. —p. 156.
Obligation of Medical Organizations in Public Health Education. F. C. Warnshuis, Grand Rapids.—p. 165.
Infantile Diarrhea. L. F. Foster, Bay City.—p. 168.
Compulsory Health Insurance and Allied Dangers. J. J. A. O'Reilly, Brooklyn.—p. 173.

Nebraska State Medical Journal, Norfolk

May, 1921, **6**, No. 5

*Cause of Failure After Operations for Club Feet. J. P. Lord, Omaha. —p. 129.
Heat in Treatment of Cancer. J. F. Percy, Galesburg, Ill.—p. 133.
Acute Manic-Depressive Psychoses and Their Early Treatment. W. B. Kern, Los Angeles.—p. 135.
Treatment of Eclampsia. C. R. Watson, Mitchell.—p. 138.
Dangers in Childbearing—A Plea for Better Obstetrics. E. C. Sage, Omaha.—p. 142.
Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 144.
Focal Infections in Mouth. F. W. Webster, Lincoln.—p. 147.
Removal of Open Safety Pin from Oesophagus of Infant B. M. Kully, Omaha.—p. 151.

Cause of Failure After Clubfoot Operations.—Lord mentions failure to overcorrect adequately as being the most common error. Also a common error is to graduate from casts too soon. When the feet have been fully overcorrected by operation, and casts to the number of three to six, worn for about six months, braces should be employed to maintain the correction for a period of several months, after which, walking without the casts may be permitted during the day, but braces or efficient supports should be worn at night to maintain the corrected or overcorrected position. This practice will insure against recurrence due to feet growing crooked again because of growth during sleep, when they are relaxed and in a position of equinus or equino varus. This factor is quite sufficient to bring about the recurrence within a period of from one to five years.

Neurological Bulletin, New York

April, 1921, **3**, No. 4

Social Development of Man and His Problems of Adjustment. L. Casamajor, New York City.—p. 125.
*Substantia Nigra: Comparative Anatomic Study. I. S. Wechsler, New York.—p. 130.
*Extra-Medullary Fibroneuroma Mainly Involving Posterior Columns of Cord. H. S. Howe, New York City.—p. 135.
Discrete Thermal Changes in Spinal Syphilis. C. A. McKendree, New York City.—p. 144.
*Diagnosis of Multiple Sclerosis in Absence of Triad of Charcot. J. Rosett, New York.—p. 148.
*Epidemic Encephalitis or Cerebral Syphilis. C. A. McKendree, New York.—p. 153.
*Epidemic Encephalitis of a Paralysis Agitans Type with Recrudescence One Year Later. G. A. Blakeslee, New York City.—p. 159.

Substantia Nigra.—Wechsler states that from a study of the serial sections of the substantia nigra in man, in seven simians and two other animals and from a review of the comparative anatomical studies of Bauer it appears that the structure is about the same in all mammals, although it is best developed in the human. It is not at all well defined and microscopically one cannot delimit it from the tegmentum, internal geniculate, the pontine nuclei or the hypothalamic region. In some of the animals it either goes down to a lower level or reaches a higher one than in others. The substantia nigra is found in all mammals but is said not to exist in lower vertebrates. No studies of it have been made in birds. The coordination of chewing and swallowing is only one of the numerous associational and coordinative functions of the substantia nigra.

Extramedullary Fibroneuroma.—The history in Howe's case is that of a gradually progressive lesion of the cord of two years' duration at approximately the level of the second lumbar segment. For the first year and a half the symptoms were those of a hemiparaplegia, and it is only during the past few months that evidences of involvement of both sides of the cord have developed. At present the motor symptoms are mainly confined to the left side and consist of weakness of the muscles of the thigh, calf and foot, hyperactive knee and ankle reflexes and a positive Babinski. The Babinski reflex is present also on the right side, though there is no definite muscular weakness demonstrable in this limb. The sensory disturbances are mainly confined to the posterior column. There is hypesthesia over the left leg below the center of the thigh, and of the right leg below the knee. The sensations of pain and temperature are not normal, the disturbances being more on the right side, but not confined to areas that make them of much localizing value. Determination of position and passive movement is defective in the left toes, ankle, knee and possibly the hip, and also, but to a less extent, in the right toes. Vibration sense is lost over both legs below the crests of the ilia, except on the upper and inner surfaces of the thighs. It is diminished below the groin. Posteriorly the loss is not as extensive, being only partial on the upper three-fourths of the right thigh and over the inner surface of the left thigh. However, there is a definite diminution everywhere below the spine of the second lumbar vertebra. On the vertebral spines and the soft tissues above, the vibrations are everywhere very distinct. At operation a tumor was found on the dorsal aspect of the cord at the level of the second and third lumbar segments. The appearance of this tumor was very similar to those arising from the acoustic nerve. It was a fibroneuroma.

Diagnosis of Multiple Sclerosis.—The symptomatology in Rosett's case indicates a multiplicity of lesions within the central nervous system, although none of the symptoms of the classical triad of Charcot is present. The patient presents neither scanning speech, intention tremor, nor nystagmus. On the other hand, dissemination of the pathologic process is manifested in many other clinical details.

Cerebral Syphilis (?).—The important symptoms and findings in McKendree's case were: acute onset, thirteen months ago with headache, low fever, vomiting, diarrhea, drowsiness and nervous symptoms; persistence of drowsiness, with insomnia of varying intensity; decided change in personality; poor memory for recent events; attacks of confusion; excitability; apathy; questionable inequality in deep reflexes of lower extremities; questionable Argyll Robertson pupils; loss of sexual desire; positive Wassermann reaction of blood serum; negative spinal fluid.

Epidemic Encephalitis with Recrudescence.—A boy in good health was suddenly taken ill with fever malaise and projectile vomiting. This was quickly followed by delirium, a distended bladder, with a loss of expulsive power and a hematuria. There was suboccipital pain, also pains in the left arm and leg. The symptoms gradually subsided and the patient was out of bed at the end of three weeks. He then first complained of diplopia and the parents noticed a constant tremor of the left hand and foot and an unsteadiness in gait. He was emotional. The boy's health improved, he was out of doors and played with other children, but there was a residual nonintention tremor and the associated movements of the left hand and foot were impaired. He has remained very emotional. At the end of one year, he developed a low-grade fever with projectile vomiting, distended bladder and increased tremor of the left hand and foot. There were also rather intense emotional reactions and headaches. The neurologic examination made by Blakeslee showed signs of a paralysis agitans syndrome and some pyramidal tract signs. With two weeks' rest the tremor has slightly diminished and the patient has gained 2 pounds in weight. The initial symptoms one year ago are interpreted as clinical manifestations of an acute inflammatory process with a moderately severe toxemia involving the cerebrum and basal ganglions. The process, or the pathologic changes following it, have never entirely subsided and one year later there is an exacerbation of the symptoms of the disease with gastro-intestinal and bladder disturbances and emotional reactions as in the primary attack.

New Jersey Medical Society Journal, Orange

May, 1921, **18**, No. 5

Early Diagnosis of Clinical Tuberculosis. B. S. Pollak, Secaucus.—p. 141.
Congenital Pyloric Stenosis. Two Cases. M. Danzis, Newark.—p. 145.
Certain Aspects of Treatment of Heart Disease. H. M. Ewing, Newark.—p. 149.
Value of Chemistry of Blood in Disease. R. Gilady.—p. 153.

New York Medical Journal

May 4, 1921, **113**, No. 13

Rôle of Prostate and Seminal Vesicles in Arthritis. O. S. Lowsley, New York.—p. 641.
Quartz Light Therapy in Obstinate Prostatic Affections. D. McCaskey, New York.—p. 647.
Suppression of Public Prostitution a Factor in Spread of Venereal Disease. A. L. Wolbarst, New York.—p. 648.
Origin of Word Syphilis. W. R. Riddell, Toronto, Can.—p. 650.
Undescended Testicle in Inguinal Canal. J. J. Gilbride, Philadelphia.—p. 656.
Roentgen-Ray Diagnosis of Lesions of Genito-Urinary Tract. L. Levyn, Buffalo.—p. 657.
Difficulties Encountered in Prostatectomy. J. A. Gardner, Buffalo.—p. 659.
Etiologic Factors of Chronic Prostatitis. A. Strachstein, New York.—p. 661.
Pitfalls in Prostatectomy. P. Martin, Buffalo.—p. 663.
Seminal Vesiculitis. M. Zigler, New York.—p. 666
Methods of Examining for Spermatozoa in Diagnosis and Treatment of Sterility. M. Huhner, New York.—p. 678.
Diseases of Genito-Urinary Tract. W. J. Ezickson, Philadelphia.—p. 684.
Important Classification of Albuminurias. E. G. Ballenger and O. F. Elder, Atlanta, Ga.—p. 686.
Vas Puncture, Injection of Vas with Argyrol and Seminal Vesiculotomy. A. S. Sanders, New York.—p. 687.

Public Health Journal, Toronto

April, 1921, **12**, No. 4

Necessity of Publicity Campaign Against Cancer. J. W. S. McCullough, Toronto.—p. 145.
Mental Measurements as Applied to a Toronto School. E. J. Pratt, Toronto.—p. 148.
Relation of Canadian National Council for Combating Venereal Diseases to Program of Venereal Disease Control. G. Bates, Vancouver.—p. 156.
Victorian Order of Nurses. Public Health Nurse as an Organizer in Rural Community. J. Forshaw.—p. 163.

Southern Medical Journal, Birmingham

[illegible], 1921, **14**, No. 5

Etiology and Diagnosis of Nephritis. J. B. McElroy, Memphis.—p. 347.
Importance of Eye Examinations in Nephritis. A. O. Pfingst, Louisville.—p. 352.
Changes Induced in Kidney When an Acute Injury is Superimposed on a Chronic Glomerulonephropathy. W. DeB. MacNider, Chapel Hill, N. C.—p. 357.
Nephritis in Childhood. L. R. DeBuys, New Orleans.—p. 362.
Nephritis and General Surgery. M. L. Boyd, Atlanta.—p. 368.
Treatment of Chronic Nephritis. W. H. Witt, Nashville.—p. 372.
Clinical Features of Epidemic Encephalitis. L. M. Gaines, Atlanta.—p. 381.
*Erysipelas in Childhood. J. H. M. Knox, Jr., Baltimore.—p. 387.
*Intraperitoneal Use of Dextrose and Physiologic Sodium Chlorid Solution in Treatment of Marasmus and Severe Type of Malnutrition. H. L. Moore, Dallas, Tex.—p. 393.
Supervision of Pre-School Children and Physical Education. F. S. Bradley, Washington, D. C.—p. 395.
Acute Diffuse Septic Peritonitis. A. L. Blesh, Oklahoma City.—p. 402.
Management of Surgical Kidney. R. L. Sanders, Memphis.—p. 408.
Hemorrhage from Kidney. H. A. Fowler, Washington, D. C.—p. 414.
Necessity for Co-Operation of all Railway Surgeons' Associations. J. W. Palmer, Ailey, Ga.—p. 420.
*Primary Carcinoma of Trachea. E. B. Cayce, Nashville.—p. 422.
Case of Extradural Abscess Complicating an Acute Left Frontal Sinusitis. W. W. Perdue, Mobile.—p. 424.

Erysipelas in Childhood.—Fifty-three cases are analyzed by Knox. The children ranged from 1 month to 9 years in age. More than half the cases (twenty-nine) occurred in the first year, and two thirds of these (twenty) in the first six months. Sex seemed to have no bearing on incidence. Erysipelas is said to be a disease more prevalent in cold weather. There was fairly equal distribution throughout the year, with a smaller number of cases in July, August and September. Apparently, in early childhood the season has less influence in the incidence of the disease, which depends more on the nature of the injury than on climate or season. The nature of the initial lesion and mode or origin was most varied. In practically every case, a definite form of injury with subsequent skin infection could be determined. No part of the body is immune; the site is largely determined by the nature of the injury. The area of the body involved in the course of the disease was exceedingly variable and bore but little relationship to the severity of the infection. The time which elapsed between the initial injury and the beginning of symptoms was from two to twenty-eight days. Nearly all the cases showed considerable elevation of temperature and symptoms of intoxication. In one instance, the temperature reached 108 F. In but one case did the temperature remain below 100 F. In all the cases the temperature curve exhibited an irregular or intermittent character. There was a pronounced leukocytosis in nearly every instance. The highest count was 55,000 in a case complicated by otitis media. There were but two counts below 10,000, both of these in critically ill children, 1 month of age, who were overwhelmed by the infection. The length of illness could be determined in fifty-one cases and its average duration was 12.1 days. It would seem, therefore, that erysipelas in young children is a particularly acute illness in which the result is determined in a comparatively brief period. Cultures from the circulating blood were made in eighteen cases; streptococci isolated in six cases; in twelve the cultures were sterile. Involvement of other tissues than the skin were frequent and complications were found in many of the cases. The most frequent one was otitis media. Of the fifty-three cases, thirty-eight patients recovered and fifteen died, a mortality of 28.3 per cent. No drugs or external applications were found to be specific. Serum treatment with antistreptococcal serum and vaccine treatment were not employed.

Intraperitoneal Injection of Dextrose in Marasmus.—Moore reports good results in these cases by giving daily from 250

to 400 c.c. of a 5 per cent. dextrose in physiologic sodium chlorid solution intraperitoneally until there has been a steady gain in weight over a period of several days. Within a few hours following the first injection the vitality improves and by the third or fourth treatment the stools have become normal in number and appearance. Usually after the second day the loss of weight is checked and by the fourth day the infant begins to gain. After gaining steadily for a few days treatment is discontinued, and rarely needs repeating. Occasionally, the weight comes to a standstill after gaining steadily for a number of days. Under such conditions, if it remains stationary or a loss begins, treatment must against be instituted as before.

Primary Carcinoma of Trachea.—Cayce's patient, aged 64, had a negative family and personal history, except for frequent attacks of migraine, which nothing seemed to relieve. First trouble noticed was while out hunting. He became short of breath on slight exertion. He developed a cough or cold at this time. He complained of cough and soreness in the chest with attacks resembling asthma every few nights. He slept well except during these attacks. About January, 1920, he had great difficulty in breathing, the dyspnea being both inspiratory and expiratory. He had a slight discoloration of the skin toward the end of his illness. The roentgen ray showed a shadow at the bifurcation of the trachea, which was interpreted as a cavity. He gradually lost weight and strength in spite of the fact that his appetite was good and he ate the most nutritious foods. With the exception of dyspnea he suffered no pain. He died April 25. At the necropsy a tumor was found at the bifurcation of the trachea, with a large sessile base located on the posterior wall of the trachea and left bronchus. This tumor had extended down into the opening of the left bronchus and was sufficiently large to occlude completely the left bronchus. It also impinged on the lumen of the right bronchus, but did not occlude it. This tumor was firmly attached to the wall of the trachea and bronchus by a large base and was infiltrated into its walls. The gross appearance was that of a malignant epithelial tumor. There was no evidence of metastasis by continuity through the wall of the trachea or bronchus to other tissues. It proved to be an adenocarcinoma.

Texas State Journal of Medicine, Fort Worth

May, 1921, **17**, No. 1

Are Women Human? W. Wilson, Memphis.—p. 9.
Gynecologic Symptoms. E. Dunlap, Dallas.—p. 12.
Plea for Ovary and Its Conservation. J. Becton, Greenville.—p. 15.
Vaginal Route in Operating for Limited Number of Pelvic Conditions. J. M. Inge, Denton.—p. 16.
Relation of Medical Profession to Industrial Surgery. A. P. Howard, Houston.—p. 16.
Medical Reconstruction vs. Surgery as Well as an Adjunct to Surgery. E. V. DePew, San Antonio.—p. 18.
Methods of Diagnosis and Treatment of Some Interesting Cases with Rational Therapy. J. W. Torbett, Marlin.—p. 19.
Allergy. N. D. Buie, Marlin.—p. 23.
*Case of Progressive Muscular Dystrophy. L. Rice, Galveston.—p. 26.
Moist Heat as a Cure for Erysipelas. E. A. Cayo, San Antonio.—p. 28.
Since We Have the Vote, What Shall We Do With It? Mrs. E. H. Cary, Dallas.—p. 28.

Progressive Muscular Dystrophy of Long Duration.—Rice's case has thus far been of eighteen years' duration, when the patient first noticed that his ankles were becoming weak, and he was compelled to give up skating, a sport in which he was expert. During the following ten years five entries were made in his health record in the U. S. Navy, and in each of them mention was made of an apparent atrophy of the calf muscles, but a diagnosis is not recorded. The patient suffered no discomfort, and performed his duties (electrician, U. S. Navy) during this period with no difficulty, but he noticed that he worked more slowly, and toward the end of the period he sometimes stumbled while walking over decks at night. A year later, he noticed that his toes would drag while walking unless his feet were lifted higher than usual above the ground. A diagnosis of "progressive muscular dystrophy" was recorded. Four years ago the patient was given shore duty because his footing become insecure, and he often fell during rough weather at sea. June, 1917, he was sent to the electrical school at New York as an instructor. Rice saw the patient for the first time in September, 1918. The physical examination revealed a marked atrophy of all skeletal muscles. The arms and legs were small and had very little power. Double foot drop was present, and the anterior and peroneal muscles had practically disappeared. The abdominal muscles were thin and the shoulder girdle was so loose that the head was half hidden when the shoulders were raised. The trapezius on each side was prominent by comparison, and had suffered much less than the other muscles of the upper chest. The platysma was well developed and no atrophy of this muscle could be detected. The patient had lost 27 pounds during the past six years, and this loss had reached 33 pounds when he passed from under observation, June, 1920. The superficial and deep reflexes, though diminished, were all present, the sphincters were not affected, and no sensory disturbances of any kind could be found. The reaction of degeneration was not present. The Romberg was negative and the pupils were equal and normal, as were the fundi. The spinal fluid was clear, under no pressure, and contained four cells per cubic-millimeter. The Wassermann was negative, Fehling's positive, and globulin was not increased. The patient was active mentally and no tremors were present. The blood Wassermann was negative. No abnormality could be found in roentgenograms of the head.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

April, 1921, No. 249

*Case of Idiopathic Multiple Pigmented Hemorrhagic Sarcoma. C. P. G. Wakeley and M. S. Thomson.—p. 339.
Cases of Gastro-Intestinal Diagnosis. W. Mitchell.—p. 343.
Action of Radium and Roentgen Rays on Malignant Cells. J. H. D. Webster.—p. 346.

Roentgen-Ray Treatment of Hemorrhagic Sarcoma.—In the case cited by Wakely and Thomson the disease involved the right lower leg and ankle. The diagnosis of multiple idiopathic hemorrhagic sarcoma was confirmed by the microscope. Roentgen-ray treatment was deemed advisable in view of the doubtful action of arsenic. For this purpose, the leg and ankle were divided into twenty-four areas, each 2½ inches square. Each section received a full pastille (Sabouraud) dose through a 3 mm. aluminum filter. A hard Coolidge tube was used, the distance from the target to the skin being ten inches. The total period over which this treatment extended was about one month. The ulceration quickly cleared up, the edema diminished and the discoloration disappeared, until on discharge from hospital there was very little difference in the two legs.

British Journal of Experimental Pathology, London

April, 1921, **2**, No. 2

Serologic Races of V. Cholerae and Relation of Some Other Vibrios to this Species. S. R. Douglas.—p. 49.
*Gastric and Respiratory Response to Meals. T. I. Bennett and E. C. Dodds.—p. 58.
*Distribution of Blood Groups in Patients Suffering from Malignant Disease. W. Alexander.—p. 66.
*Influence of Bile Salts on Gastric Function. C. A. Pannett and C. M. Wilson.—p. 70.
*Etiology of Rickets: An Experimental Investigation. D. N. Paton and A. Watson.—p. 75.
*Antiseptic Potency of Acriflavine, with Considerations on Variability of Results in Testing Antiseptics. C. H. Browning and R. Gulbransen.—p. 95.
*Picrocarmine. V. Jensen.—p. 103.

Gastric and Respiratory Response to Meals.—Studied by means of gastric analysis and by estimation of alveolar tension, normal men are found to fall into four distinct classes. The results obtained by the two methods are found to confirm one another. Cases showing achlorhydria during gastric analysis show a curve of alveolar carbon dioxid tension similar to that obtained in patients following gastrectomy. Such cases show a fall in alveolar carbon dioxid tension at a later period indicating normal secretion during the later processes in digestion. Cases of hyperchlorhydria in healthy men have sometimes been found to show changes in alveolar carbon dioxid tension following meals which exceed what have previously been considered physiologic limits. Some normal

cases occur in which the processes of upper alimentary digestion are so rapid as to be only demonstrable by observations taken at very short intervals. Cases which yield a high gastric acidity during digestion are usually found to show a relatively high tension of alveolar carbon dioxid even during the "resting" phases of the stomach; in cases of achlorhydria the reverse is seen.

Blood Grouping in Malignant Disease.—The blood group of fifty cases of malignant disease has been determined by Alexander and the incidence of each compared with that in 125 cases of other diseases and fifty normal persons. It is found that, while persons belonging to all four groups are liable to malignant disease, those in Groups I and III appear to be peculiarly susceptible, and the clinical type of disease is, generally speaking, more malignant.

Influence of Bile Salts on Gastric Function.—It is shown experimentally in cats and man that the addition of a small quantity of sodium taurocholate to a testmeal is followed by an abnormally rapid evacuation of the stomach contents.

Etiology of Rickets.—Paton and Watson state that in young dogs under ordinary laboratory conditions a liberal allowance of milk fat, up to even 14 gm. per kilo of body weight, neither prevents the onset of rickets nor cures it when it has developed. Pups kept largely in the open air may escape the development of rickets on an intake of less than 1 gm. milk fat per kilo of body weight. With scrupulous care as to cleanliness it is, at least sometimes, possible to rear pups free of rickets in the laboratory on an intake of only about 0.5 gm. milk fat per kilo of body weight, along with bread, provided that the diet affords an adequate supply of energy. The energy value of the diet, however supplied, quite apart from the presence of any hypothetic antirachitic factor in milk fat, would seem to play a part in controlling the development of rickets, but that it is only a contributory part is shown by the development of rickets in pups with a high energy intake if confined in the laboratory without scrupulous care as to cleanliness. Milk fat may be reduced to about 0.3 gm. per kilo of body weight, if its place is taken by an equal amount of lard, without the onset of rickets. The results of these observations do not support the conclusion of the Accessory Food Factors Committee of the Medical Research Council that rickets is a deficiency disease due to a lack of an antirachitic factor associated with milk fat.

Antiseptic Potency of Acriflavine.—Browning and Gulbransen state that the sterilizing concentrations of acriflavine (diaminoacridene methochlorid) in heated ox serum (56 C.) for *B. coli* and *Staphylococcus pyogenes aureus* are respectively 1:100,000 and 1:200,000, these being the modal values obtained in an extensive series of tests. These figures correspond with the values originally assigned. The sterilizing concentrations in dilute peptone water, with a reaction from p_H 7.2 to 7.8 (approximately), are found to be for *B. coli* 1:20,000 and for *Staphylococcus pyogenes aureus* 1:200,000 (modal values). These values represent a much higher activity than those originally given. Different commercial specimens of acriflavine could not be distinguished as regards their antiseptic potency, but there was evidence that certain specimens were more irritating to the conjunctiva than others; this property is likely to be important where the substance is employed in treating an infection of a delicate membrane, e. g., that of the urethra. Methods of testing the antiseptic power of acriflavine by repeated inoculation of a mixture of antiseptic and serum, and also by adding the antiseptic after the growth of organisms *(B. coli)* had occurred in the medium, have shown that rapid exhaustion or deterioration of the antiseptic in the medium does not occur.

Jensen describes his technic as follows: 1. Magnesium-carmine (P. Mayer): 1 gm. carmine and 0.1 gm. magnesium oxid are boiled in 50 c.c. distilled water for 5 minutes. Cool and filter. Then 0.5 c.c. liquid phenol is added. 2. Magnesium picrate (P. Mayer): 50 c.c. 0.5 per cent. picric acid solution in distilled water boiled for some minutes with 0.25 gm. magnesium oxid. Cool and filter. 3. One per cent. picric acid in distilled water. Mix 1 and 2. Then add 10 c.c. of 3, shaking constantly. This gives an absolutely clear, deep red staining fluid, which on account of the phenol present remains unalterated for months, perhaps years. The stain applied for from three to five minutes to a celloidin or paraffin section produces a beautifully differentiated effect, and the nucleus, especially, is nicely stained, the best results being obtained after hardening in alcohol or mercuric chlorid.

British Journal of Tuberculosis, London

April, 1921, **15**, No. 2

Training in Tuberculosis. G. Woodhead.—p. 53.
Postgraduate Instruction in Tuberculosis. D. B. King.—p. 55.
Methods and Principles of Classification in Pulmonary Tuberculosis. F. R. Walters.—p. 57.
Insurance Against Sickness in Ex-Sanatorium Patients. J. Watt.—p. 61.
"In This Sign": Story of Tuberculosis Crusade of Double-Barred Cross in United States. P. J. Jacobs.—p. 63.
*Stability Reaction of Blood in Pulmonary Tuberculosis. A. Westergren.—p. 72.

Stability Reaction of Blood in Tuberculosis.—If blood is prevented from coagulating (e. g., with oxalate or citrate), the red blood corpuscles during gravidity and in most pathologic states sedimentate faster than in normal conditions. Westergren has investigated the suspension stability as it occurs in pulmonary tuberculosis. Altogether about 4,000 tests have been made. It is obvious that a reaction of the organism caused by the pathologic process (proceeding or just passed off) is reflected in the suspension stability of the blood. And, furthermore, the degree to which the stability is reduced corresponds surprisingly well to the extent of activity which the process, clinically interpreted, may be presumed to possess. On the whole, the figures are increased with increase of lesions of the lung tissue, but acute cases show the strongest reactions, chronic cases relatively lower figures, the size of which generally is correlative to the activity of the process. No single test of an active, or probably active, case has given a normal value, and no case which must be considered quite benign, and certainly shows no signs of activity, has given a high, even a middle-high figure. The stability frequently is reduced, even to a very high degree, though for a long time quite a normal temperature has been observed, and the stability reaction seems considerably more than the temperature to be a reliable measure of the activity of the process. When a series of probatory injections of tuberculin were made, and the patients were followed up with stability reaction tests every day or every second day, without exception a typical influence by the tuberculin on the stability has been discovered; in the first place, an obviously increased sedimentation appears, which may be noted earlier and always lasts for a longer time than the reaction of the organism which is manifested in the general state and by careful measurements of the temperature. Though reduction of the suspension stability is in no way a specific reaction, the stability reaction very likely can have a diagnostic value for tuberculosis. With normal stability, an active phthisis is most probably to be excluded.

British Medical Journal, London

April 30, 1921, **1**, No. 3148

*Posterior Rhizotomy for Relief of Pain. W. Thorburn.—p. 629.
*Symptomless Hematuria. J. B. Macalpine.—p. 631.
*Serologic Study of Hemolytic Streptococci. M. H. Gordon.—p. 632.
Postural or So-Called Static Deformities. A. S. B. Bankart.—p. 636.
Differential Staining of Carcinomata. A. G. Shera.—p. 639.
Operation for Retroflexion of Uterus. J. Craig.—p. 639.
Dislocation of Radius Forward at Inferior Radio-Ulnar Joint. L. Rogers.—p. 639.
Prevention of Intestinal Obstruction After Ventrofixation. R. Stewart.—p. 639.

Posterior Rhizotomy for Relief of Pain.—Thorburn has performed this operation for gastric crises in three cases; two of these date back to 1914. One presents complete immunity and the other relatively great improvement as regards the crises, which alone the operation was designed to meet. In the cases in which pain was limited to the left side, the operation was unilateral only; in Case 1, in which complete cure resulted, it involved the fourth to the eight thoracic roots; in Case 3, in which relief resulted, the fourth to the eleventh roots were cut. In Case 2, partially relieved, the operation was bilateral, and concerned only the fifth to the eighth roots. Apart from the main issue in the above cases, attention may be called to two points, namely, the complete-

ness and permanence of anesthesia, and the total absence of any indication of trophic changes in the affected parts; in both of which respects the operation conforms to the results produced by dividing the sensory root of the gasserian ganglion. Rhizotomy for painful affections of the limbs was performed by Thorburn twice. These two cases are sufficiently indicative of the uncertainty of relieving severe neuralgia by posterior rhizotomy, and one case shows very clearly how some painful affections of the limbs may be associated with changes extending into the central nervous system.

Symptomless Hematuria. — Macalpine suggests the term "unaccompanied hematuria" and urges that a careful search be made for the cause of the hemorrhage in these cases.

Serologic Study of Hemolytic Streptococci.—By the absorption of agglutinin test hemolytic streptococci have been differentiated by Gordon into three distinct groups or types. Of these Type I is the largest. To this serologic group belong the vast majority of specimens of hemolytic streptococci from localized or general streptococcal infections, from cases of puerperal sepsis, and from infections of the respiratory passages other than scarlet fever. Type I, in fact, represents *Streptococcus pyogenes*. Type II is rare: only two specimens of it have been obtained. Type III is chiefly to be found in the secretion on the tonsil and fauces in scarlet fever. Serologically this *Streptococcus scarlatinae* is quite distinct from *Streptococcus pyogenes*. The observations of Tunnicliff and Bliss to that effect are confirmed.

Medical Journal of Australia, Sydney

April 9, 1921, **1**, No. 15

Principles Governing Modern Midwifery Practice. M. McLorinan.—p. 283.
Team Work in Sanitation. W. A. Sawyer.—p. 285.
*Case of Hydatid of Heart. R. H. Marten and C. T. C. de Crespigny.—p. 287.

Hydatid of Heart.—In this case the diagnosis was made with the fluoroscope. The heart was seen on the fluorescent screen to be pushed over to the right of the sternum and a large, nonpulsatile, rounded opacity was noted in the left side of the thoracic cavity, coming from under the left border of the sternum, about as large as a fetal head at term. The diagnosis made was that of hydatid cyst, probably old, with its origin in the mediastinum, compressing the root of the left lung, dislocating the heart into the right side of the thorax and obstructing the left innominate vein. Under local anesthesia, the needle of an aspirator was thrust through the third interspace, about two inches (5 cm.) to the left of the middle line of the sternum and appeared to enter a cavity. No fluid came through to the vacuum, but the needle was plugged with a chocolate colored, pasty material, which proved to be made up of broken down blood cells, with much cholesterol, but no other evidences of hydatid. The patient stood the puncture very well; but the next day the dull area seemed to have a marked pulsation, but no expansion. The left pupil was then seen to be dilated for the first time. The patient died suddenly in collapse about two weeks later. At the postmortem examination a tough, fibrous cyst wall was found lying anterior to the heart and densely adherent to the thoracic wall. In separating the sternum and sternal ends of the costal cartilages the cyst was ruptured and large quantities of a brown, pasty material exuded. This was scooped out with the hands and amounted to about a liter. Further exploration showed a large cystic structure, with a fibrous and partly calcareous wall, occupying the lower half of the left side of the thorax. It bulged forward and inward almost to the midline, dislocating the left portion of the heart backward, so that only a vertical strip of heart, about 4 cm. in transverse measurement, was contiguous to the anterior chest wall. The cyst appeared to be attached to the apex of the heart and to bulge through the pericardium. It filled the lateral and posterior part of the lower left pleural cavity and was densely adherent to the thoracic cage and to the diaphragm, extending upward laterally as high as the sixth rib and posteriorly to the sixth or seventh rib, in the line drawn vertically through the angle of the scapula. The left lung was compressed and pushed upward, sitting, as it were, on the top of the cyst. Bulging to the right from the heart, arising from the lower external aspect of the right auricle, was a second spherical cyst about 5 cm. in diameter, with a firm, fibrous wall and containing a putty-like material and numerous small, degenerated daughter cysts.

South African Medical Record, Cape Town

April 9, 1921, **19**, No. 7

Problem of Venereal Disease. J. A. Mitchell.—p. 122.
*Some Infections Due to Fresh-Water Snails and Their Eradication. F. G. Cawston.—p. 125.
*Significance of Albumin in Sputum, Application to Early Diagnosis of Pulmonary Tuberculosis. A. C. Alport.—p. 127.
Scurvy. P. H. Walker.—p. 128.

Infections Due to Snails.—Several distinct parasites which closely resemble the cercariae of *Schistosomum haematobium* infest fresh-water snails in South Africa. Physopsis africana, a common snail of stagnant pools, is heavily infested with them. Cawston found them in 552 out of 1,896 specimens of this snail. Many are the typical cercariae which produce bilharziasis, and by feeding a number of guinea-pigs on green food containing them he has obtained the adult parasitic worm, *Schistosomum haematobium*. Others are almost twice the size of the bilharzia, measuring as much as 0.7 mm. in total length. These have developed into the typical bilharzia worm of cattle, *Schistosomum bovis*.

Albumin in Sputum Aid in Early Diagnosis of Pulmonary Tuberculosis. — Experience has convinced Alport that the qualitative and quantitative examination of the sputum for albumin is an easy and useful method of arriving at a diagnosis in the earlier stages of pulmonary tuberculosis, and might with advantage be employed not only by the specialist, but also by the busy general practitioner. The presence of albumin in the sputum is an indication of active disease of the lung tissue itself. If the bronchii alone are affected, the amount of albumin present, if any, will be negligible. If other inflammatory diseases of the lungs are excluded, all patients with 0.2 per cent. or more of albumin in the sputum may be regarded as suffering from active pulmonary tuberculosis. Used in conjunction with diagnostic subcutaneous injections of a reliable tuberculin, the albumin test is a means of distinguishing between active and inactive tuberculosis. If the reaction is positive, the disease is active; if negative, the condition is latent.

Bulletin Médical, Paris

April 30, 1921, **35**, No. 18

*Parkinsonian Epidemic Encephalitis. J. A. Barré and L. Reys.—p. 351.
Labyrinthic Form of Epidemic Encephalitis. Barré and Reys.—p. 356.
*The Eye in Epidemic Encephalitis. Duverger and J. A. Barré.—p. 361.
Cerebrospinal Fluid in Epidemic Encephalitis. Barré and Reys.—p. 366.

Postencephalitic Parkinsonian Syndrome.—Barré and Reys found atropin the most effectual treatment in the 20 per cent. presenting parkinsonian symptoms among their 101 cases of epidemic encephalitis. They gave this and scopolamin, each for five days in turn, or with shorter alternations, combining the scopolamin with morphin, and suspending for a few days after ten injections of each drug. Great relief follows, but it may be transient. The tremor is more rebellious than the stiffness. The effect of atropin, 1 or 2 cg. daily, fractioned, was more durable in the three cases thus treated. In the milder cases the scopolamin was given by the mouth—¼ mg. once or twice a day—for several weeks with improvement, sometimes durable.

The Ocular Symptoms in Epidemic Encephalitis.—Duverger and Barré describe the numerous ocular manifestations of this disease, especially in the parkinsonian form. Similar symptoms are found also in true paralysis agitans and in certain pathologic conditions in the labyrinth. They warn that the relics of these ocular manifestations of epidemic encephalitis will have to be reckoned with in examining the eyes for years to come, and they must not be mistaken for the ocular manifestations of neurosyphilis.

Bulletins de la Société Médicale des Hôpitaux, Paris

April 15, 1921, **45**, No. 12

*Small Repeated Doses of Arsenicals in Syphilis. Sicard.—p. 471.
*Thrombosis Under Arsenical Treatment. C. Oddo and P. Giraud.—p. 478.
*Gangrene from Gas Poisoning. Laignel-Lavastine and Alajouanine.—p. 484.

Serotherapy of Gonococcus Arthritis. Lemierre and Deschamps.—p.489.
*Fatal Liver Insufficiency in Pregnancy. M. Labbé and others.—p. 494.
Alveolar Tension in Diabetics. F. Rathery and F. Bordet.—p. 498.
Vaccine Therapy of Emphysema and Bronchial Catarrh. J. Minet.—p. 502. Idem, in Acute Pulmonary Disease. Idem.—p. 505.
*Physostigmin Test in Cardiology. A. Mougeot.—p. 512.
Necropsy in Case of Epidemic Hiccup. Clerc and others.—p. 522.

Small Repeated Doses of Arsenicals in Syphilis.—Sicard extols the excellent results that he is obtaining with small doses of neo-arsphenamin kept up until in time 8 or 10 gm. have been incorporated. All tendency to shock is avoided, he says, by preliminary injection of sodium carbonate, as already mentioned in these columns. Pinard and others in the discussion protest that small doses may "blanch" syphilitics, but do not cure them. They insist that the current large doses are no more dangerous than small, saying: "fatalities are as common after the small as after the large doses."

Gangrene from Thrombosis During Arsenical Treatment.—Oddo and Giraud report two cases of gangrene of the feet or hands from arterial thrombosis occurring in the course of neo-arsphenamin treatment. They know of only one similar case on record, and ascribe the disturbance to flocculation, similar to the "hemoclasic crisis." They add that disturbances of this kind might be warded off possibly by Sicard's preliminary injection of sodium carbonate.

Illuminating Gas Poisoning.—About three weeks after severe poisoning with illuminating gas, the man developed gangrene of the foot and phlegmasia alba dolens, with final recovery.

Acidosis with Pregnancy.—Labbé and his co-workers report a case of acute degeneration of the liver of unknown cause at the seventh month of a pregnancy, with death in acidosis.

Physostigmin Test in Cardiology.—Mougeot remarks that very little is known of the action of physostigmin in treatment of heart disease, but subcutaneous injection of 1 or 2 mg. of physostigmin salicylate, dissolved in water, retards the heart beat. This occurs under all conditions, unless the myocardium and the innervation are extremely abnormal. A positive response shows that the heart rhythm is under the influence of the supracardiac nerves; negative, it demonstrates that the rhythm is no longer obeying the supracardiac nervous system, testifying to intracardiac functional derangement. In treatment of heart disease, physostigmin seems promising, but its action is far from fully determined as yet.

Lyon Médical, Lyons

April 25, 1921, **130**, No. 8

*Obliteration of Inferior Vena Cava. J. Chalier and Longy.—p. 335.

Obliteration of the Inferior Vena Cava.—Chalier and Longy have encountered four cases of this kind in ten years, and describe the necropsy findings in three of them. If the process is slow and gradual, collateral circulation develops and wards off danger. Otherwise death is inevitable. Thrombosis, compression and involvement in malignant disease are the usual causes. In two of their four cases the obliteration was secondary to iliac phlebitis, of typhoid origin in one case and tuberculous in the other. In a third case a primary cancer of the liver had invaded the vena cava. The main symptoms are edema and complementary circulation; as the latter develops the edema subsides in some cases, but it may persist indefinitely. The diagnosis requires exclusion of edema from heart or kidney disease or cachexia. In their typhoid case the obliteration had evidently been of four years' standing. The man died from intercurrent pneumonia.

Médecine, Paris

April, 1921, **2**, No. 7

*Recent Progress in Obstetrics and Gynecology. L. Devraigne.—p. 501.
Retrodisplacement of Pregnant Uterus. A. Couvelaire.—p. 510.
Slitting the Cervix to Promote Delivery. A. Levant.—p. 515.
Obstetric Future after Cesarean Section. A. Morisson-Lacombe.—p. 521.
Extra-Uterine Pregnancy. H. Duclaux.—p. 523.
*Impairment of Vision During Pregnancy. C. Coutela.—p. 528.
*Intra-Uterine "Drowning" of the Fetus. Duvoir.—p. 534.
*Perineal Hysterectomy. B. Cunéo.—p. 539.
Primary Retroflexion of the Uterus. A. Siredey.—p. 546.
Tuberculosis of the Adnexa. A. Baumgartner and Bardon.—p. 551.
Radium Treatment of Uterus Fibromas. P. Descomps.—p. 554.
*Venesection in Treatment of Puerperal Eclampsia. J. L. Chirié.—p. 560.
Treatment of Syphilis During Pregnancy. G. Sauphar.—p. 569.

Recent Progress in Obstetrics and Gynecology.—In this survey of 1920, Devraigne warns against the tendency to too ready resort to cesarean section, and advises to keep the woman in bed the last month of pregnancies occurring after a cesarean section. He comments on the importance of the diastolic blood pressure with obstetric hemorrhages for estimation of the shock. Rouvier injected 0.10 gm. of morphin during the first hour of a grave eclampsia and followed with 0.14 gm. in four hours, saving both mother and child. Sclerous pulmonary tuberculosis, with pronounced skin reaction, seems to be uninfluenced by a pregnancy, but other forms are aggravated by the stress of the last month and delivery. He hails as great progress the Puericulture School of the medical department of the University of Paris, a Franco-American foundation, with Pinard the director, and the three services in charge of Couvelaire, Marfan and L. Bernard. The whole is open to physicians, students, midwives and social workers. This school is supplemented by a national motherhood asylum near Paris, an institution where nursing mothers can rest and recuperate. In gynecology, most of the interest during the year has centered in roentgen and radium ray therapy of tumors, but nothing definite seems to have been universally accepted. In conclusion, he recalls Daniel's recent warning that pain is common with cancer of the body of the uterus, even in the early stages.

Impairment of Vision During Pregnancy.—Coutela cites figures showing 19 deaths among 169 women with pregnancy retinitis, while 20 were left blind. In 63 cases in which the fate of the child is known, only 26 were born alive, and 14 died soon after birth—a total mortality of 51 in 63 cases. These figures, he says, "confirm the dictum of the Americans that the pregnancy must be interrupted in cases of albuminuric neuroretinitis." He adds that in the last months of the pregnancy it might be advisable to wait until vision drops below 1/6, in the hope of obtaining a living child.

Intra-Uterine "Drowning" of the Fetus.—Duvoir confirms that the fetal respiratory muscles may function, and amniotic fluid may be drawn down into the air passages when the fetus is suffering from defective circulation. Evidence of this intra-uterine "drowning" can be discovered in the lungs with the microscope, and may have both obstetric and forensic import.

Perineal Hysterectomy.—A similar article was summarized in THE JOURNAL, April 30, 1921, p. 1283.

Venesection in Treatment of Puerperal Eclampsia.—Chirié has found that withdrawal of 20 or 30 per cent. of the blood, that is, up to 1,500 gm., relieves the system in grave puerperal eclampsia of quantities of toxins, and the lowering of the blood pressure opens the faucets for the voiding of urine. In one case 5.5 liters of urine were voided the third day thereafter. He gives the woman at once 0.01 gm. of morphin; ascertains the blood pressure, and draws from 800 to 1,500 gm. of blood, giving at the same time a purge. If necessary, he gives it through a tube in the nose; this is followed by rinsing out the bowel with several liters of boiled water. He never interferes obstetrically, except possibly with forceps when spontaneous dilatation is complete. This may occur rapidly in the eclamptic. A flannel chemise is put on the patient and she is kept in a dark room and forced to take every hour 100 gm. of a 40 per cent. solution of lactose, watching over the blood pressure, with a small venesection if it runs up again, and giving 0.01 gm. morphin again if the convulsions persist. He never gives chloroform or chloral. In his last seven cases the women recovered under this treatment, and only one died in his total 25 cases. His mortality was thus 4 per cent. and he thinks that a prompter use of morphin might have saved even this one woman.

Paris Médical

April 23, 1921, **11**, No. 17

*Pleural Adhesion after Pneumothorax. R. Burnand.—p. 321.
Treatment of Gonorrhea. Cattier.—p. 326.
Intratracheal Treatment of Asthma. A. Balvay.—p. 329.

Adhesion of Layers of Pleura After Pneumothorax.—Burnand says that we can count on a complicating pleuritis in from 50 to 80 per cent. of all cases of induced pneumothorax.

Any tendency to pleuritis entails inevitably adhesion of the sheets of the pleura. In seven cases without known pleuritis, the sheets were found completely grown together in three of the cases when examined a few weeks or months after suspension of the pneumothorax. In seven others, complicated with pleuritis, in five the synechia was complete in a few months; in the sixth, it proved possible to induce the pneumothorax again after a two month interval, and in the seventh case it developed spontaneously anew a few years later. Whether insufflation of a little air will ward off synechia is an important question for study at present. At necropsy of persons who have died at Leysin during or after artificial pneumothorax treatment, he found deposits of fibrin in the pleura. These evidently aid in soldering the sheets together when they come in contact anew. This adhesion may be broken up, a plane of cleavage found, and the pneumothorax induced anew if not more than a month has elapsed since the layers were in contact.

Presse Médicale, Paris

April 13, 1921, **29,** No. 30

*Reflexes of the Genito-Urinary Apparatus. J. M. Bartrina.—p. 293.
*Blocking the Brachial Plexus. Reding.—p. 294.
Tint of Erythrocytes in Culture Mediums. P. P. Lévy.—p. 296.

Reflexes of the Genito-Urinary Apparatus.—Bartrina expatiates on the light thrown on numerous morbid conditions in the abdomen by the recent discovery at Barcelona of a central ganglion connected with all the viscera. It explains the interlocking reflexes, as in a case described in a physician of 34 with recurring kidney colics and uremic autointoxication. Two operations had failed to locate the kidney stones, and the Ambard constant was high, the diuresis extremely reduced and the uremia progressing. The kidney with the calculus in the pelvis was then removed, and by the third day the total output of urea had jumped from 1 to 68 gm. and progressive improvement followed. This paradoxic effect from reducing the total of kidney substance can be explained only by the suppression of some nervous inhibiting influence. The case suggests that simple nephrolysis or even merely denuding the vessels in the kidney pedicle might arrest anuria or neuralgia in the kidney region, as we know that causalgia and trophic lesions can be influenced by peripheral sympathectomy, resecting the network of sympathetic fibers on a segment of the artery involved.

Blocking the Brachial Plexus.—Reding declares that the drawbacks of Kulenkampff's supraclavicular technic and of other methods can be avoided by injecting the anesthetic at a point 2 cm. below the intersection of the humeral artery and a line parallel to the midaxillary line. The finger feels the lengthwise groove containing the artery and the trunk nerves. The groove is well defined by large muscles, and the group of six nerves is always found in the same place, but this technic does not reach the collateral branches of the brachial plexus.

Progrès Médical, Paris

April 2, 1921, **36,** No. 14

*Eclampsia. H. Vignes.—p. 145.
Fracture of Neck of Femur. Potherat.—p. 149.
Physiotherapy of Tremor. R. Dubois.—p. 151.

Eclampsia.—Vignes remarks that, in addition to albuminuria, edema and high blood pressure, headache, dyspnea and sharp pain in the stomach are premonitory signs of eclampsia. The urine should be examined for albumin every day if the woman has ever had eclampsia and, in any event, once every two weeks. When albuminuria is found, strict repose should be enforced, and she should be guarded against chilling. She should wear flannel and the room should be kept warm (about 68 F.) and nothing but milk allowed for food, remembering Tarnier's dictum that a woman on a strict milk diet for eight days need not fear eclamptic convulsions. At most there may be one or two mild convulsions at the onset of labor. If convulsions seem imminent, even milk should not be allowed, and only lactosed water given in large amounts. Copious enemas and a drastic purge are important adjuvants. Venesection and lumbar puncture may be indicated, but delivery should not be induced if the woman is not in labor, and it is wiser not to attempt to hasten the dilatation. The most that should be done is to hasten delivery with forceps when it is under way.

Revue Franç. de Gynécologie et d'Obstét., Paris

February, 1921, **16,** No. 2

*Resection of Sacrovertebral Angle with Contracted Pelvis. V. Cathala and B. Perrot.—p. 65.
Calcification of Uterine Fibromyomas. H. Lorin.—p. 79.
Cold Abscess in Broad Ligament. G. de Rouville.—p. 85.
Irrigation of Pelvis after Operative Treatment of Salpingitis. M. Péraire.—p. 87.
Technic for Premature Artificial Delivery. P. Balard.—p. 90.

Resection of Promontory with Contracted Pelvis.—Cathala and Perrot have compiled twenty-four cases in which this operation has been done; 4 of the women died, and 4 had grave infection. This mortality of 16.5 per cent. is higher than with even repeated cesarean section. Only one of the women had another pregnancy later, so that the operation proved superfluous in all the others. The pelvis was found enlarged only by 2 and 5 mm. in 2 of 6 women reexamined a year later. In the others the measurements were the same as before the operation in 3 and in one the diameter was 5 mm. smaller.

Schweizerische medizinische Wochenschrift, Basel

April 21, 1921, **51,** No. 16

*Lingual Goiter. E. Köhl.—p. 361.
Diphtheria of the Skin. M. Winkler.—p. 374.

Goiter at Base of Tongue.—Köhl describes in detail the removal of a lingual goiter in a young woman and compares with this all the cases he has been able to find in the literature—a total of 119 communications on the subject and 56 additional works on the pathogenesis. In the 93 cases, all were in women except 10. In 74 cases the goiter was at the base of the tongue; in 5 at the root of the tongue, and in 9 it involved both the root and the base. In his case there were 2 lingual goiters, one in the root of the tongue. Exploratory puncture is liable to entail uncontrollable hemorrhage. The goiter can be removed by seven different methods, but he advocates lateral pharyngostomy to reach the root of the tongue. The best access to the base of the tongue is by temporary division of the side of the jaw in the more serious cases. Two operations were required in his case. Only one instance of tetany is known after a removal of a lingual goiter, but there have been several cases of postoperative myxedema, and the surgeon must be sure to leave enough functional thyroid tissue to prevent hypothyroidism. This is sometimes a difficult matter, as lingual goiter is liable to return if any of the tissue is left, the remainder proliferating. On the other hand, in Asch's case, the parathyroid bodies had been included in the tumor at the base of the tongue, and their loss entailed tetany.

Annali d'Igiene, Rome

December, 1920, **30,** No. 12

*Peculiar Bodies Found in Typhus. G. Ficai.—p. 733.
Typhoid in Italy and the Water Supply. V. Puntoni.—p. 741.
*Tetanus Bacilli in Intestines of Rabbits and Guinea-Pigs. C. Ninni.—p. 756.
The Proteus in Relation to Cholera Infantum. G. Pupilli.—p. 763.

Bodies Found in Typhus.—Three colored plates show a large number of round bodies found in the brain cells of typhus cadavers and also in the epithelial cells of the stomach of lice infected with typhus virus. These corpuscles were found constantly and exactly similar in these various sources, and never in controls. They resemble the cellular or corpuscular inclusion bodies in other diseases with a filtrable virus, such as the Negri bodies, the Prowazek inclusions, etc. The bodies found in typhus are of two forms, small, of homogeneous structure, and a large form, with from one to five secondary corpuscles, or a single central body or nucleus.

Tetanus Bacilli in Intestines of Animals.—Ninni was able to cultivate the tetanus bacillus from various portions of the digestive tract in rabbits and guinea-pigs, and the bacilli were almost always toxic although the toxicity was variable. The findings were constant in the forty-two animals, the material taken from eight different portions of the stomach and intestine. Further research on soil from mountainous

regions and elsewhere free from the dejecta of domestic animals apparently confirms that the tetanus bacillus is not a saprophyte of the soil but of the intestines of animals, and it reaches the soil through the dejecta. Ninni's experiments with the tetanus bacillus grown in culture mediums with the colon bacillus, streptococcus and other germs, seem to indicate that the biologic activity of the tetanus bacilli may be modified by antagonistic germs and thus its virulence be reduced. The lactic acid and the Bulgarian bacilli displayed the strongest action in this line of attenuation of toxicity, the staphylococcus and enterococcus least.

Archivio Italiano di Chirurgia, Bologna

April 10, 1921, **3**, No. 3

*Interruption of the Spermatic Passages. G. Bolognesi.—p. 207.
*Postoperative Ileus. L. Losio.—p. 249.
Ileus from Strangulated Properitoneal Hernia. F. Niosi.—p. 260.
The Gall-Bladder after Experimental Ligation of Bile Duct. G. Forni —p. 275.
*A Sphincter Gastrostomy. F. D'Agostino.—p. 285.
Ligation of Vessels in Back of Hand. G. B. Macaggi.—p. 293.
*Rupture of Kidney D. Fieschi.—p. 305.

Interruption of the Spermatic Passages.—Bolognesi found that the effect on human subjects was very much less than in dogs and other animals after surgical removal of the epididymis and of the vas deferens, and the effect of removal of the testes on the epididymis. He gives three pages of bibliography (but without citing Steinach), and describes several clinical cases.

Postoperative Ileus.—Losio states that after evacuation of an intramesenteric abscess of appendicitic origin, ileus developed requiring an artificial anus. Above this, peristalsis was normal but the alimentary enemas were all forced rapidly out through the fistula, and the ileus gave way to uncontrollable diarrhea, speedily fatal.

Improved Gastrostomy.—An illustrated description is given of a method of forming a sphincter for an opening into the stomach, and D'Agostino reports its successful application in a man of 74 with a diverticulum in the esophagus preventing proper feeding. The opening into the stomach was continent from the first, and has given perfect satisfaction since. The stomach is reached through a median incision. He seizes the anterior wall near the cardia. This peak is drawn through a tunnel made for it in a narrow strip of the rectus muscle, to the right of the median incision. The peak is then drawn farther on toward the right, through a second tunnel 2 cm. beyond the first, the whole slanting upward and outward, and the tip of the peak is fastened in the upper portion of the last one of the three incisions in the skin. The stomach is fastened to the rectus muscle close to the first incision, and also to the strips of rectus muscles bridging it as the peak is drawn up toward the right to hold the whole in place. The protruding peak can be opened at once or later; the two small incisions are sutured at once. There is no danger of the sphincter thus made becoming displaced or twisted, and the fistula is continent whatever position the subject assumes. Solid food, finely chopped and passed through a sieve, can be given almost from the first. It might be possible to have the subject chew his food and then expel it into the funnel, passing it directly into the opening into the stomach. This might keep up the appetite better.

Rupture of the Kidney.—In the case described, the laceration of the right kidney caused pains only in the left kidney. Fieschi had to expose both kidneys to discover the injured one, which was then removed, with smooth recovery. The kidney had been lacerated in over a dozen directions and contained a number of calculi. The nephrectomy relieved the patient of all pains.

Policlinico, Rome

April 23, 1921, **28**, No. 17

*Changes in Character and Mind after Epidemic Encephalitis. C. Francioni.—p. 575.
Artificial Pneumothorax with Bilateral Tuberculosis. U. Cassinis.—p. 582.
Pain in the Feet. G. Dragotti.—p. 585.
Italian Physicians in France in Former Centuries. I. di Pace.—p. 590.

Changes in Character and Mind After Epidemic Encephalitis.—Francioni was impressed with the change in character, the agitation and other mental disturbances, and inversion of the rhythm of sleep in twenty children after an attack of epidemic encephalitis. One child of 6 seemed nearly normal during the day but as night approached displayed psychic and motor agitation of such intensity that it could be compared only with a neurotic convulsion. In this and some other cases the motor phenomena were restricted to one side of the body, and they reappeared every night in the same form. In the intervals the body stiffened and curved backward, with stertorous breathing. These disturbances kept up all night. The child was conscious throughout, but babbled incoherently. The motor phenomena were not so pronounced when the child was kept sitting up or on his feet, but no distraction was able to ward off the development of the attacks at the same hour each night. He cites others who have reported similar experiences in children and adults. He notes that in all the cases, when the subject finally falls asleep the slumber is natural and profound. The anomaly seems to be connected with the phase of falling to sleep. There is always a period of yawning before the drop into natural sleep. The psychic disturbances seem to be at a minimum during the daytime and reach their maximum as the subject retires at night. The influence of change of environment and suggestion shows that there are certain neurotic factors in the clinical picture, superposed on the organic changes in the brain. In one unilateral case the movements were accompanied by pains, and the muscles responded abnormally to electric tests on that side. He had only three instances of probable direct contagion; two brothers developed the disease at the same time as their schoolteacher. No necropsy findings have been reported as yet, but there is much to sustain the assumption that a disturbance in circulation may be an important factor. These psychic disturbances usually followed mild attacks of encephalitis, and a preceding neuropathic taint could be traced in almost all. The syndrome described displayed a marked chronic tendency, with very slow and gradual change for the better. In his cases great improvement, if not a complete cure, has been realized in a few of the cases. Sedatives and tonics with change of environment seem to be the main reliance.

Riforma Medica, Naples

April 9, 1921, **37**, No. 15

*Nitrogen Metabolism and Liver Functioning. G. Pezzali.—p. 338.
*Frontal Sinusitis. R. Caminiti.—p. 341.
Coagulation of Spinal Fluid in Tuberculous Meningitis. A. Graziani. —p. 344.
Therapeutic Anaphylactic Shock. A. Muggia.—p. 345.
Intestinal Spirochetosis. I. Jacono.—p. 346.
Limits of Surgical Treatment for Intestinal Stasis. E. Aievoli.—p. 346.

Nitrogen Metabolism in Relation to Liver Function.—Pezzali describes extensive research, clinical and experimental, to determine the metabolism of nitrogen from the blood above and below the portal system in various conditions of feeding. He was unable to discover any technic that would enable this differentiation. His research included both normal and diseased livers. The tabulated findings confirm that to date no reliable conclusions can be drawn in regard to liver disease from the urea and ammonia in blood and urine.

Frontal Sinusitis.—Caminiti describes some cases which illustrate the difficulty of differential diagnosis in certain cases. In one the sinusitis had induced a large mucocele in the brow and in another case in the orbit. Ample resection of the anterior wall of the sinus was followed by a complete cure.

Tumori, Rome

Jan. 18, 1921, **7**, No. 4

*Etiology of Goiter. G. Zanoni.—p. 277.
*Tumor of the Corpus Callosum. O. Tenani.—p. 332.
*Primary Tumor in the Aponeurosis. G. Bolognesi.—p. 353.
*Surgery of the Kidneys. G. Angioni.—p. 362.

Etiology of Goiter.—Zanoni gives a full summary of what has been accomplished in the line of experimental goiter production to date, including the attempts to induce goiter with water from regions where goiter is endemic, and to ward off goiter in endemic regions by importation of water—all with negative results. He then describes extensive research on white rats which has demonstrated that white rats from a region where goiter is not endemic when

brought into the endemic district show an almost constant increase in size and structural changes in the thyroid. He found, however, that wild rats living in liberty in endemic goiter regions gave constantly negative findings. He remarks that in the present status of our knowledge of the origin of goiter only two things seem to be absolutely established, and both are the deductions of Italian workers. One is the constant slight enlargement of the thyroid in all persons living in regions where goiter is endemic. This enlargement of the thyroid must be considered as the physiologic reaction of the gland to a functional need created by the environment, although this is not goiter. The second fact is the absolute independence of the thyroid enlargement from the drinking water, and the fact that goiter is not transmissible directly or indirectly (Grassi and Munaron).

Tumor of the Corpus Callosum.—Tenani compares with a case described the few similar cases on record, scarcely more than 100 in all. In his case the young man's symptoms suggested merely a cerebellar tumor, but the gliosarcoma, as large as a hen's egg, was found in the center of the reflected part of the corpus callosum. The data cited show that our knowledge of the physiology of the corpus callosum is still very vague. Lumbar puncture in his case, releasing 5 c.c. of fluid under high pressure, showed merely moderate lymphocytosis. The seat of the headache, the vomiting, the amblyopia, abducent paralysis, and paralysis of the left seventh nerve, tendency to deviate to the side, contracture of the muscles of the back of the neck, ataxic gait, Romberg's sign and vertigo pointed to a cerebellar site.

Primary Tumor in the Aponeurosis.—Bolognesi reports a case in a young man in which three years after a fall from a horse, causing severe contusion of the upper third of the thigh, a small tumor had developed in this region. It proved to be a small-cell sarcoma, developing from the intermuscular aponeurosis; it measured 15 by 13 cm. but the gait had not been modified. Recovery was complete after exarticulation of the hip joint. The tumor had not invaded the tissues around.

Surgery of the Kidneys.—Angioni reports from Fichera's service three instructive cases of operative kidney disease with complete recovery after nephrectomy. In the first case a boy of 8 had a tumor in the right kidney but the urine was normal. The region had been injured and for the last ten months there had been pains in the right flank. The tumor was an adenocarcinoma and weighed 1,430 gm. Angioni compares with this the cases on record of kidney tumors in children, and emphasizes the lack of hematuria and pain which are so prominent with kidney tumors in adults. In the majority there was nothing but the tumor to attract attention. The child is in the best of health at present, nearly a year after the operation. In a second case the tumor had developed in the region of the right kidney, consecutive to trauma in childhood, with very slow course and intense destruction of the parenchyma with attacks of pain and pyuria—all cured by nephrectomy at 36. In a third case the symptoms had developed after nephropexy. The kidney had evidently suffered too much from the traumatism of the handling, and hydronephrosis had developed gradually during the seven years since. The urine at times was blood stained and the amount of urine grew less as the tumor increased in size. The general health had suffered severely from this recurring hydronephrosis, but nothing was found to suggest kinking of the ureter. This case suggests the necessity for excising the adipose capsule instead of turning it down toward the hilum, as this is liable to induce cicatricial retraction and adhesions. Both had occurred in this case.

Gaceta Médica de Caracas, Venezuela

Feb. 28, 1921, **28,** No. 4

The Modern Functional Tests for the Kidneys. A. J. Castillo.—p. 41.
Idem. L. Razetti.—p. 45.

Repertorio de Medicina y Cirugía, Bogota

January, 1921, **12,** No. 4

Prophylaxis of Gonorrhea. R. Zapata.—p. 173.
Chenopodium in Therapeutics. A. Peña Chavarría.—p. 206.
Indications for and Complications of Gastro-Enterostomy. A. Torres Martínez.—p. 211. Cont'd.

Semana Médica, Buenos Aires

March 17, 1921, **28,** No. 11

*Case of Purtscher's Disease. E. de la Vega.—p. 305.
*Hematometra and Appendicitis. A. Gutiérrez.—p. 308.
Prophylaxis of Tuberculosis in the Army. T. Padilla.—p. **310.**
*Normal Beef Serum in Anthrax. R. Kraus and P. Beltrami.—p. 311.
Otitis Simulating Mastoiditis. R. Becco.—p. 314.
D'Herelle's Coccobacillus Acridiorum.—R. L. Dioc.—p. **316.**
*Edema of the Arm. Alejandro Pavlovsky.—p. 317.

Case of Purtscher's Disease.—Vega adds another case to the nine he has found on record of traumatic angiopathy in the retina with lymphorrhagia. There was no hemorrhage in his case, no fracture of the skull.

Hematometra and Appendicitis.—Gutiérrez found atresia of the vagina responsible for the filling of the uterus with blood in the young girl. There was concomitant appendicitis, and the blood had forced its way down into the labia. He made an opening from the vagina into the uterus after evacuating the blood in the labium, and menstruation proceeded normally thereafter.

Normal Beef Serum in Anthrax.—Kraus and Beltrami here report a supplementary series of experiments on guinea-pigs which apparently confirm their previous statements in regard to the efficacy of normal beef serum in treatment of anthrax. Compare with editorial, Sept. 29, 1917, p. 1085.

Acute Edema of the Arm.—Pavlovsky has analyzed twenty-one cases of acute or subacute edema of the arm after over-exertion, pointing out the rapid development, the predominance of the right arm, the absence of general symptoms, and the painful thrombosis which can usually be detected in the axilla. A number of small veins open into the basilic vein at this point. The blood from these veins flows in different directions when reaching the principal vein, and the play of the muscles accentuates this opposite direction, while the large vein is kinked during abduction—all of which favors development of thrombosis. Three cases are described in detail with illustrations. The course was benign in all with apparently complete recovery.

Siglo Médico, Madrid

March 19, 1921, **68,** No. 3510

Reform in Spanish Insane Asylums. E. Fernández Sánz.—p. 261.
Pericarditis. F. Huertas.—p. 265.
The Eyes in Epidemic Encephalitis. M. M. Amat.—p. 266.
Vaccine Treatment of Typhoid. A. Diaz y Gil.—p. 271.

March 26, 1921, **68,** No. 3511

*Dangers of Intraspinal Treatment. R. del Valle y Aldabalde.—p. 285.
*Heat Stroke and Sun Stroke. L. Figueras Ballester.—p. 286. Conc'n in No. 3512, p. 315.
Hydrogen Ions as Gage of Acidity. T. Morató.—p. 290.

April 2, 1921, **68,** No. 3512

Reform in Insane Asylums. J. Sanchis y Banús.—p. 309.
Vitamins in Culture Mediums. J. Jiménez.—p. 310. Cont'd.
Localized Tetanus. E. Chauvin.—p. 316. Cont'd.

April 23, 1921, **68,** No. 3515

Tuberculosis of the Pharynx. J. M. Barajas y de Vilches.—p. 381. Cont'd.
Sanitary Equipment for Rural Medical Inspection. V. M. Cortezo,—p. 384. Conc'n in No. 3515.

Dangers of Intraspinal Treatment.—In del Valle's case four intraspinal injections had been given in the course of a month. Mercury was used for the first two, and neo-arsphenamin for the last two. The latter were followed by complete paralysis of the legs, and incontinence of urine and stools. The treatment had been given for old syphilis which had been inducing pains at various points, especially in the head, for four or five years, with weakness of the legs. No benefit was realized with revulsion to the spine, or strychnin, but the paralysis improved under daily ten minute applications of galvanic electricity.

Immunity of Negroes to Heat Stroke and Sun Stroke.—Figueras argues that the pigmentation of the skin in the negro allows the utilization of the heat from without to such an extent that the organism does not need so many calories as the white man, while they can stand exposure to heat very much better. He found that the negroes in Guinea thrived and kept in metabolic balance on a diet of rice, fish and butter representing only 1,843 calories, although at severe manual

labor. Whites under the same circumstances—even when not working—required twice this amount of calories to keep them in good condition. Figueras' research tends to show that this difference is due to the dark skin which acts something like the chlorophyl of plants in transforming the heat absorbed, and thus enabling it to be utilized directly for the necessities of the organism.

Deutsche medizinische Wochenschrift, Berlin

March 31, 1921, **47**, No. 13

Effect of Steinach Operation on Metabolism. Loewy and Zondek.—p. 349. Idem on the Testes. H. Tiedje.—p. 352.
Investigation of Secretory Function of Testes. Lipschütz.—p. 350.
Further Reports on Transplantation of Testis. Mühsam.—p. 354.
Vaccine Treatment of Suppurative Cerebrospinal Meningitis. B. Hartmann.—p. 357.
Increase in Phagedenic Affections. A. Buschke.—p. 358.
Abortive Treatment of Syphilis. Blanck.—p. 358.
Osmosis in Relation to Balneotherapy. Günzburger.—p. 358.
The Pathogenesis of Malignant Tumors. G. Herxheimer.—p. 358.
Practical Hints in Regard to the Newborn. L. Langstein.—p. 360.

Deutsche Zeitschrift für Chirurgie, Leipzig

March, 1921, **161**, No. 6

*Peptic Ulcer. P. Müller.—p. 361.
*Neurologic Research on Kinematized Stumps. O. Veraguth.—p. 406.

Peptic Ulcer.—Müller discusses peptic jejunal ulcers in general and in particular a case in which the peptic ulceration recurred three times at intervals after gastro-enterostomy. Circular resection of the stomach finally cured the man, and he has been in good health during the four years since. This case teaches anew the superiority of radical resection over gastro-enterostomy when the gastric juice is particularly strong. This can be ascertained beforehand, perhaps, by testing in vitro the digesting power of the undiluted juice. In his instructive case, at the fourth operation, two thirds of the secreting mucous membrane of the stomach were resected, with the attached anastomized loop of bowel. We can regard ulceration in the stomach as the result of a set of factors, the most important of which are removed by reducing the secreting surface, with the resulting change in the chemistry of the stomach, and the paralyzing of the pylorus by the severing of the nerves, while the removal of the ulcer also arrests the tendency to spasm. The years of martyrdom of his patient might have been avoided if the radical operation had been done first instead of last. Some of the statistics he cites show that intervals from a few days up to twelve years may elapse before the peptic ulcer develops, but the majority occur within the first two years, and men form from 80 to 91 per cent. of the peptic ulcer group.

Neurologic Research on Kinematized Stumps.—Veraguth gives here the findings in six cases in which a large number of different functional tests were applied to the muscles and nerves in the tunnels through the stump. He says that the findings open new prospects for training coordinated muscular action, utilizing new synergisms and antagonisms.

Monatsschrift f. Geb. u. Gynäkologie, Berlin

October, 1920, **52**, No. 4

Centennial of Extraperitoneal Cesarean Section. Fuhrmann.—p. 225.
Premature Separation of Normally Located Placenta. Albeck.—p. 231.
*Organ Extracts as Oxytocics. R. Köhler.—p. 240.
Multiple Congenital Cavernomas. H. Gänssbauer.—p. 247.
*Osteomalacia. H Koltonski—p 253
Laceration of Umbilical Cord Vein, F. Kermauner.—p. 263.

Organ Extracts as Oxytocics.—Köhler's experimental research has apparently demonstrated that extracts of all the ductless glands and of the placenta have a pronounced effect in promoting contraction of the uterus.

Osteomalacia.—In Koltonski's case no treatment, not even castration, produced any lasting effect until the multipara of 38 was given epinephrin. Marked improvement followed the third subcutaneous injection of 1 c.c. of synthetic epinephrin. The pains subsided and the patient was soon able to be up and about. Cod liver oil and phosphorus were given at the same time. As the woman improved, she became intolerant of the epinephrin. He advises to begin treatment with organotherapy, relying on castration as the last resort. His figures show that castration cures in about 87 per cent. of the cases.

Therapeutische Halbmonatshefte, Berlin

April 1, 1921, **35**, No. 7

*Prophylaxis and Treatment of Jejunal Ulcer. Haberer.—p. 193.
*After-Treatment in Gastro-Enterostomy. C. von Noorden.—p. 196.
Synthetic Capacity of Human and Animal Cells. Weitzel.—p. 200.
Theobromin Preparations in Epilepsy. C. Pototsky.—p. 207.
Intravenous Treatment of Syphilis with Neo-Arsphenamin plus Mercuric Chlorid by the Linser Method. C. Tollens.—p. 212.

Prophylaxis and Treatment of Jejunal Peptic Ulcer.—Haberer discusses the etiologic factors of peptic ulcer. In the last analysis, patients may be said, the same as is the case with gastric and duodenal ulcer, to have a predisposition in which the chemical composition of the gastric juice, vascular changes, and nervous disturbances probably play a part. He emphasizes that the appearance of postoperative jejunal peptic ulcer has depended, in his experience, quite materially on the type of operation employed in the surgical treatment of gastric and duodenal ulcer. He found from his own 663 cases that after resection of the portion of the stomach or duodenum on which the ulcer was seated, he did not need to fear the appearance of a postoperative peptic ulcer, although he admits that they may occur in very rare instances. On the contrary, out of 71 cases of unilateral exclusion of the pylorus, he saw 14 postoperative jejunal ulcers arise. Following gastro-enterostomy, peptic jejunal ulcers developed in 3 of his 265 cases. They are exceedingly resistant to internal treatment, and he therefore advises radical operation, ample resection of the diseased portions, if necessary, including the colon. Haberer has performed this operation 18 times, which resulted in 14 cures, the transverse colon having been resected in 2 instances, in addition to extensive resection of the stomach and jejunum. There were 3 deaths nothwithstanding that the resection had been successful. The remote results have been favorable.

After-Treatment in Gastro-Enterostomy.—Von Noorden says that formerly internal treatment after gastro-enterostomy was difficult to carry out, as not infrequently the surgeons themselves regarded it as superfluous. He has seen cases in which within ten days after the operation patients were allowed to eat anything they liked. Many cases of jejunal ulcer and of severe and debilitating intestinal dyspepsia are traceable to such ill considered advice. If postoperative jejunal ulcer occurs, the basis for it is usually laid during the first few weeks or months following gastro-enterostomy. Both theory and experience demand at first a diet that does not incite the secretion of hydrochloric acid. Light and more frequent meals than normally are indicated, so that a keen appetite with a marked flow of gastric juice cannot develop. This will also prevent the intestine becoming suddenly overloaded with chyme. In other respects the diet should be regulated as in cases of gastric hypersecretion. Von Noorden emphasizes the marked acid-combining capacity of casein, and the inhibitory effect of fats on gastric secretion. Cottage cheese, thoroughly mixed with milk or cream or softened and loosened up by stirring in beaten whites of eggs, with sugar, he advises using plentifully, beginning a few days after the gastro-enterostomy, on the same principle that this is a most valuable article of diet in hyperchlorhydria. Of the fats, the fat of boiled beef, fresh and melted butter or, still better, vegetable oils (from 1 to 2 tablespoonfuls after eating) are indicated. The antiacid effect of oils is more marked if taken separately than if mixed with the food. For the first three weeks after the operation, von Noorden recommends a diet consisting of boiled milk, fresh cottage cheese, two or three soft boiled eggs, fine wheat bread, butter, gruels and plain rice dishes. Alcoholic beverages, even in small quantities, are liable to cause damage. At the end of about three or four weeks the patient may gradually be allowed more variety. Mild cheese, mashed potatoes, vegetables (passed through a sieve), and cooked fruits may be added. This diet should be adhered to for from six to eight weeks, all meat or raw vegetables being excluded. It is always better if the patient can be kept in the hospital for three or four weeks after the operation to insure proper after-treatment. The dishes that he "relishes" particularly should be scrupulously avoided, also appetizing odors, etc., to ward off the so-called psychic gastric secretion.

Wiener klinische Wochenschrift, Vienna

March 31, 1921, **34**, No. 13

Twenty-Five Years of Roentgenography; Its Relation to Physics. E. Lecher.—p. 141.
Early Operation on Hermaphroditic Children for the Definite Determination of Sex. K. Meixner.—p. 142.
Surgery of Gastro-Intestinal Ulcer. J. Schnitzler.—p. 144.
Pathologic Anatomy of Gastric Ulcer. C. Sternberg.—p. 146.
Intravenous Therapy. K. Stejskal.—p. 146.
Narcolepsy. W. Somer.—p. 147. Begun in No. 12, p. 132. Conc'n.

April 7, 1921, **34**, No. 14

Negative and Positive Phase of Susceptibility to Tuberculin. F. Hamburger and K. Peyrer.—p. 157.
Deposition of Amyloid in Dermatoses. H. Königstein.—p. 157.
Nasal Lavage with Recurrent Flow. J. Fein.—p. 158.
Pathologic Anatomy of Myeloses and Lymphomatoses. Sternberg.—p. 158.
*Diagnosis of Gastric and Duodenal Ulcer. M. Haudek.—p. 159.
*Traction Diverticulum of the Esophagus. J. Palugyay.—p. 161.
*Treatment of Pellagra with Own Blood Serum. Strassberg.—p. 162.

Roentgenologic Diagnosis of Gastric and Duodenal Ulcer.—Haudek refers to the great increase in the number of cases of gastric and duodenal ulcer during the past ten years, the main reason for which is better diagnosis due to the introduction of the roentgen ray. The changes in the form of the roentgenographic shadows of the stomach and the duodenum are a faithful reproduction of the anatomic changes in the walls brought about by the ulcer. The changes are accentuated by local spastic contractions, and thus reveal very early stages of wall lesions not diagnosticable clinically. Besides the filling defect, Haudek's niche, ulcerous scar tissue in the walls is reflected in a whole series of anomalies in the shadow of the gastric and duodenal lumen; in the notching of the greater curvature; in inward protrusion of the stomach wall with ulcer of the lesser curvature; in ectasia with pyloric ulcer, and in the various types of deformities of the duodenum with duodenal ulcer. On the gastric serosa the ulcer causes first acute, and then chronic, circumscribed peritonitis, both of which find their expression in the roentgenogram. The muscular and secretory excitation phenomena commonly associated with ulcer influence markedly the tonus and the peristalsis of the muscularis propria, as may be clearly seen in the roentgenogram, as also the hypermotility or retention. The roentgen procedure also reveals the size of the ulcer, its probable hardness, the amount of penetration; the complication with stenosis of an organic or spastic nature near the cardia, on the body of the stomach, at the pyloric orifice or in the duodenum; furthermore, adhesions with neighboring organs, especially the liver, the pancreas, gallbladder, transverse colon and the anterior abdominal wall. A plus outline of the shadow (niche) speaks for ulcer; a minus, for cancer. Conclusions as regards prognosis, indications for operation, and the management of operated cases are discussed.

Value of Roentgenologic Examination, with Elevated Pelvis, in Traction Diverticulum of the Esophagus.—Palugyay recommends that in all cases in which a traction diverticulum of the esophagus is suspected, or pulmonary processes point to a perforation between a diverticulum and a bronchus, a roentgenologic examination of the patient with elevated pelvis be made in order to show up the diverticulum and clarify the diagnosis.

Treatment of Pellagra with Own Blood Serum.—Strassberg reports the results of his trials of injections of the patient's own blood serum in the treatment of 16 frank cases of pellagra. From the brachial vein he drew from 20 to 40 c.c. of blood into freshly sterilized test tubes. The blood was allowed to stand from three to four hours at room temperature. The clotted blood was then removed from the sides of the tube with a flamed platinum needle, and the blood was put in the icebox over night. The next morning the separated serum (from 10 to 17 c.c.) was injected into the pellagra patient—for the most part intragluteally; a smaller portion, subcutaneously. After three or four days the injections were repeated. The patients received from three to six injections, ordinarily; one was given eight injections. During this treatment the patients did not change their diet or mode of living. They all presented the typical symptoms of pellagra, the characteristic dermatitis on hands and feet (sometimes also on the face and neck), heart burn, a burning sensation in the esophagus, dizziness and headache. In 8 of the 16 cases thus treated, all skin manifestations and subjective symptoms disappeared in from eight to twenty-six days; 4 patients had improved after from eight to thirty-six days; 2 patients after an observation period of from eight to twenty-six days showed little or no improvement, and 2 patients did not finish the course of treatment, having had only two injections. Strassberg states that pellagra if untreated usually requires several months to clear up. Whether the symptoms ever returned he is not able to state, as the camp in Roumania where the trials were made was broken up.

Zeitschrift für Kinderheilkunde, Berlin

March 21, 1921, **28**, No. 2-4

*Phosphates in Spasmophilia. J. Jeppsson and K. O. af Klercker.—p. 71.
*Resisting Powers of the Prematurely Born. R. Kyrklund.—p. 168.
The Fat Acids in Infant Feeding. Rietschel.—p. 183.
Butter-Flour Mixture in Infant Feeding. Rietschel.—p. 201.
*Serodiagnosis in Scarlet Fever. E. Thomas and K. Pesch.—p. 208.
Syphilitic Chancre on Lip of Infant. I. M. Handovsky.—p. 216
Action of Lobelin on Respiration. A. Eckstein and others.—p. 218.
*Pulmonary and Glandular Tuberculosis in Negroes. G. B. Gruber.—p. 243.

The Alkaline Phosphates as Factor in Spasmophilia.—Af Klercker relates that his attention was called to this subject by the invariable development of tetany with carpopedal spasm in a child of 7 whenever it was given sodium phosphate by the mouth. It showed no tendency thereto at other times. This confirms the view that the spasmogenic substance in milk is the whey, and that only the salts in the whey, and probably only the alkaline phosphates, are responsible for the symptoms we call spasmophilia. His assistant, Jeppsson, devoted years of research to the subject, and this long report of his results was ready for publication when he succumbed to a necropsy infection. His research demonstrated that children with latent spasmophilia were not affected by whey which had been deprived of its phosphates. His research testified further that all the children displaying a tendency to spasmophilia had been getting an excess of alkaline phosphates. Necropsies showed an abnormally large proportion of phosphorus in the brain, muscles and bones. The property of the alkaline phosphates to reduce the calcium content of the tissues is a further element in their injurious action.

The Resisting Power of the Prematurely Born.—Kyrklund devotes ten pages to the tabulated data in respect to sixty prematurely born infants. They confirm that the bactericidal properties are as well developed in the prematurely born, weighing 2,500 gm. or less, as in other infants. Various diseases have no effect on the bactericidal powers except acute digestive disturbance; this has a more pronounced effect than in normal children.

Serodiagnosis in Scarlet Fever.—Thomas and Pesch examined 150 specimens of serum from fifty children with scarlet fever, applying the Wassermann test and the Meinicke, and tabulate the parallel findings. The latter was invariably negative while the Wassermann reaction was positive in thirty-six and dubious in fifteen.

Pulmonary Tuberculosis in Negroes.—Gruber found at necropsy of twenty-five Senegal African soldiers who had succumbed to pulmonary tuberculosis, that the pathologic findings were like those in European children. They testify to unpreparedness, the defenselessness of those exposed to infection for the first time, and confirm that tuberculosis in adults is in the fullest sense of the word a children's disease.

Zentralblatt für Chirurgie, Leipzig

Dec. 25, 1920, **47**, No. 52

*Technic of Skin Grafting. W. Braun.—p. 1555.
*Ligation of Artery in Roentgen Irradiation. J. Wieting.—p. 1556.
Resection of Nerve Roots in Gastric Crises. W. Lehmann.—p. 1558.
*Exposure of Articulation of the Jaw. P. Bockenheimer.—p. 1560.
Urine Test for Gravity of Autointoxication as Indication for Operation in Ileus. M. Flesch-Thebesius.—p. 1562.

April 2, 1921, **48**, No. 13

Drip Irrigation of Bladder in Prostatectomy. Roedelius.—p. 442.
Whitlow with Gangrene at End of Finger. K. Hanusa.—p. 445. Idem. F. J. Kaiser.—p. 447.
Untoward Symptoms After Lumbar Puncture. O. Bumke.—p. 449.
Note on Splanchnicus Anesthesia. A. Rebula.—p. 450.

The Technic of Skin Grafting.—Braun describes his method of skin grafting, in which the transplant is actually embedded

—as we plant sets or shoots—in the depths of the granulation mass. The defect to be covered is cleansed from all necrotic tissue and treated for a time with moist compresses and douches; a small Thiersch flap is then cut up with scissors into pieces 4 or 5 mm. square. With tweezers or a needle these square pieces are inserted on a slant in rows in the depths (3 to 4 mm.) of the granulations, so that the young cells close over the sets entirely. The granulated surface of the defect is covered over with overlapping strips of oiled tissue, first for three, then for two days; after-treatment with moist compresses, douches and ointments. In four or five days the first epithelial islands appear, and in three or four weeks the last. Epidermization proceeds concentrically. If it stops, then the remaining area must be "planted" with more sets.

Ligation of Artery Before Roentgen Irradiation.—Wieting recommends that before applying deep roentgen irradiation to tumors, the artery furnishing the blood supply be ligated, as the effect of the rays on the neoplastic tissue is thereby much enhanced. The more exclusively the tumor is supplied with blood from a single principal trunk, the more effective will be the ligation. In how far the same procedure may be applicable to other diseases amenable to roentgenotherapy remains to be seen.

Exposure of the Articulation of the Jaws Without Visible Scar.—Bockenheimer describes his method with which the facial nerve and the parotid gland are absolutely protected from injury; no visible scars on the face are produced; the incision leaves ample room for resections and plastic operations, and the healing process is prompt and uneventful. He first makes a curved incision down to the bone, back of the ear, not carried high enough to sever blood vessels needed for the blood supply to the ear, nor low enough to injure the facial nerve 2 cm. below. The ear is drawn forward and then, keeping close to the bone, the cartilaginous part of the auditory meatus is cut across. This enables him to draw the ear so far forward as to bring into view the articulation of the jaw directly in front of the auditory meatus. Working from behind, the articulation is denuded of its soft tissues, which, by means of a blunt retractor, are drawn forward and outward. Thus all injury to the parotid gland and the facial nerve is obviated. With some difficulty in the case of bilateral ankylosis described, the articulation and a portion of the ascending ramus were chiseled off, leaving a gap about 2 cm. wide at the site of the articulation. In place of resection with the chisel, it might be better to employ a Doyen fraise, as the surrounding soft parts are less likely to be injured. After hemostasis is completed, a flap of fat and fascia taken from the thigh is inserted at the site of the resected joint to prevent the bone surfaces growing together again. The ear is returned to place and held firm by the suturing of the skin incision. To promote more rapid healing of the cartilaginous meatus, a rubber tube is inserted in the passage and held in place with iodoform gauze.

Zentralblatt für Gynäkologie, Leipzig

April 2, 1921, **45**, No. 13

Laceration of the Tentorium Cerebelli. W. Zangemeister.—p. 457.
Temporary Sterilization. T. H. Van de Velde.—p. 459.
Sterility Induced by Ligation of Tubes. J. Schiffmann.—p. 464. Idem, by Tying Knot in Tubes. W. S. Flatau.—p. 467.
Untenability of Placental Theory of Eclampsia W. Gessner.—p. 469.
*Stereoroentgenographic Obstetric Measurements. L. Drüner.—p. 472.

Stereoroentgenographic Measurement of the Female Pelvis and the Fetal Head Immediately Preceding and During Childbirth.—Drüner considers the main question in obstetrics to be, Can this child pass through this birth canal without injury? He has found the stereoroentgenogram the best and only satisfactory means of solving the question. Since the publication of a previous article in 1919 in which several examples and illustrations were given, he has not changed his procedure, and it has since then proved reliable in nineteen further cases both during and immediately preceding childbirth. He thinks that the value of the procedure is absolutely established. The exposure is made with the patient seated, the promontory and the symphysis in a plane parallel to the plate.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

March 5, 1921, **1**, No. 10

Amyloid Deposits in Lung. T. C. Lobel and P. A. ten Thije.—p. 1234.
*Alkaptonuria. K. A. Rombach.—p. 1240.
*Present Status of Exophthalmic Goiter. J. E. Schulte.—p. 1243
*Oil from Corpse, 1658. J. R. Jansma.—p. 1252.
*Inoculation of Smallpox, 1755. J. van der Hoeven.—p. 1258.
*Portraits of Physicians in Antiquity. J. G. de Lint.—p. 1262.

Alkaptonuria.—In examining a candidate for life insurance, Rombach discovered alkaptonuria in the man of 26. There is no ochronosis. He is inclined to regard the alkaptonuria as an entirely harmless anomaly of the metabolism except that osteo-arthritis deformans is liable to develop later in life.

Present Status of Exophthalmic Goiter.—Schulte's review of the literature of the last few years on this subject shows that the thyroid is no longer regarded as exclusively responsible for this disease. It is the most important link in the chain, but other ductless glands may be involved. The latter, however, usually return to normal functioning when the influence of the thyroid is removed. Operative reduction of the thyroid has gained ground in recent years. The improvement realized is prompt and more permanent than with internal measures, while the mortality does not seem any greater than with the latter. He says of roentgen-ray treatment, that it renders operative measures more difficult if they finally have to be applied, and that fatalities have been reported, as also the transformation of an exophthalmic goiter into myxedema. He ascribes the success with operative measures in America in large part to the fact that people here are more accustomed to operations in the early stages of disease. The diagnostic import of the blood count is still disputed. The danger of tetany from ligation of all the four arteries of the thyroid has rendered surgeons wary with this as it seems to cut off the nourishment from the parathyroids. Schulte adds that he had a case of transient tetany himself from this cause.

History of Medicine.—These three articles reproduce documents of historic interest, one describing a "miraculous" flow of oil from a corpse, and one the letters that passed between two doctors in 1755 in regard to tentative inoculation against smallpox. The third article reproduces busts of Asclepias and others, and a coin depicting Xenophon of Coos. The people of Coos seem to have placed his image on the coin in gratitude for his services. De Lint relates some further historical data about this Xenophon who was body physician to the emperor Claudius.

Hospitalstidende, Copenhagen

Feb. 23, 1921, **64**, No. 8

*Case of Milky Ascites. T. Guldmann.—p. 113.
Radium Treatment in Various Countries. C. D. Bartels.—p. 117.

Milky Ascites.—Guldmann reports a case of traumatic chyloperitoneum in a boy of 14. The tear in the mesocolon, through which the milky fluid was oozing, was sutured with catgut, and recovery was soon complete. He knows of only one similar case. This was in a boy with rupture of the thoracic duct. Feeding by the rectum for a time arrested the chylorrhea, and the rupture healed. In connection with this case he describes a case of chylothorax, evidently the work of a tuberculous gland. The pleura was cleared out and the boy of 4 recovered.

Ugeskrift for Læger, Copenhagen

March 31, 1921, **83**, No. 13

Spontaneous Fluctuations in Wassermann Reaction. Thaysen.—p. 447.
*Pneumothorax in Treatment of Hemoptysis. T. Begtrup-Hansen.—p. 457.

Artificial Pneumothorax in Treatment of Hemoptysis.—Begtrup-Hansen relates that in ten of his eleven cases the hemoptysis was merely an additional indication for the "collapse therapy" of the unilateral destructive tuberculous process. The tendency to hemorrhage from the lungs was arrested at once, and it never returned in the six cases of complete pneumothorax. In the others, further measures to compress the lung were required later. In an eleventh case it proved impossible to induce the pneumothorax, and death ensued, from pneumonia. Necropsy revealed that the bleeding had been from the supposedly sound lung, although nothing had suggested this during life; not even roentgenoscopy. No roentgenogram had been made.